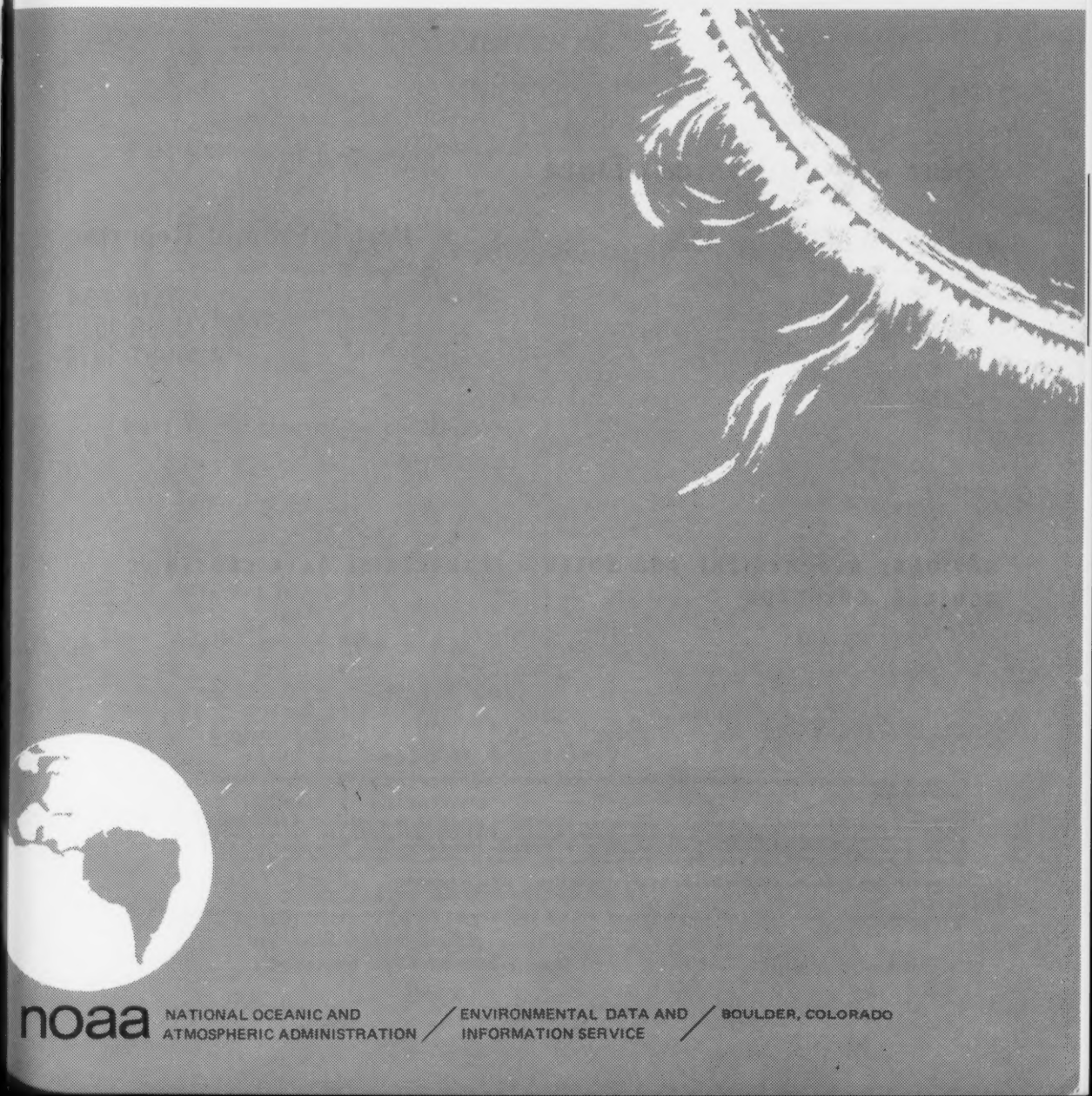
OCTOBER 1978 Number 410 - Part I

Solar-Geophysical Data prompt reports

Data for September 1978 -- August 1978
Explanation of Data Reports Issued as Number 402 (Supplement) February 1978



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Solar - Geophysical Data

NO. 410 OCTOBER 1978

Part I (Prompt Reports)

DATA FOR
SEPTEMBER 1978
AUGUST 1978

NATIONAL GEOPHYSICAL AND SOLAR - TERRESTRIAL DATA CENTER
BOULDER, COLORADO

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Solar-Geophysical Data, 390 Part I (or Part II), pages, February 1977, U.S. Department of Commerce, (Boulder, Colorado, U.S.A. 80303).

SOLAR-GEOPHYSICAL DATA

No. 410

Issued in two parts

Helen E. Coffey, Editor

J. Virginia Lincoln, Chief
Solar-Terrestrial Physics Division

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F.1i	Cosmic Ray Neutron Counts (Kiel)	403A138	404A138	405A150	406A161	407A155	408A155	409A134	410A152	
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ALERT PERIODS

INTERNATIONAL URSIGRAM
AND WORLD DAYS SERVICE
SEPTEMBER 1978

SUMMARY OF THE GEOALERT WWA MESSAGES

Message serial number	Date of issue	Date of observation	Wolf number	10 cm solar flux	A index	Active Regions				Outstanding events	Forecasts			Alert Situations
						Location Lat-Long	No. of Flares Total	M	X		Date	Location Lat-Long	Desc*	
244	1	31	187	137	31	N20W64	0	0	0		31	N20W64	Q	SOLALERT 01/XX MAGALERT MINOR 01/02
						N15W23	0	0	0			N15W23	Q	
						N20E04	3	0	0			N20E04	E	
						N32E12	0	0	0			N32E12	Q	
						S20E32	1	0	0			S20E32	Q	
						N17E47	5	0	0			N17E47	C.A.	
						S30E54	5	0	0			S30E54	D.A	
						S19E75	0	0	0			S19E75	Q	
245	2	1	239	156	18	N22W63	0	0	0		1	N22W63	Q	SOLALERT 02/XX MAGNIL
						N12W38	1	0	0			N12W38	Q	
						N20W08	4	0	0			N20W08	D.A.	
						N36E12	0	0	0			N36E12	Q	
						S21E18	1	0	0			S21E18	Q	
						N16E22	2	0	0			N16E22	C.A.	
						N17E30	5	0	0			N17E30	C.A.	
						S29E42	10	1	0			S29E42	A	
						S34E58	3	1	0			S34E58	A	
						S18E63	0	0	0			S18E63	Q	
246	3	2	240	172	14	N19W22	2	0	0	PRESTO TOYOKAWA	2	N19W22	D.A.	PROTON FLARE ALERT 03/XX MAGQUIET
						S21E04	0	0	0	02/0603Z TENFLARE		S21E04	Q	
						N17E20	3	0	0	210 FLUX UNITS		N17E20	D.P.	
						S31E26	16	5	0	02/0550Z DURATION		S31E26	C.P.	
						N13W53	0	0	0	10 MINUTES		N13W53	Q	
						S18E49	0	0	0			S18E49	Q	
						N17E11	1	0	0			N17E11	C.P.	
						S34E47	3	0	0			S34E47	D.A.	
						N36W02	0	0	0			N36W02	Q	
						S15E66	0	0	0			S15E66	Q	
247	4	3	277	164	10	N20W33	0	0	0		3	N20W33	Q	MAJOR FLARE ALERT 04/XX PROTON
						S21E08	1	0	0			S21E08	Q	FLARE ALERT 04/XX MAGQUIET
						N17E08	0	0	0			N17E08	Q	
						S31E14	15	0	0			S31E14	D.P.	
						S20E34	0	0	0			S20E34	Q	
						N16W01	1	0	0			N16W01	Q	
						S34E32	2	0	0			S34E32	E	
						N37W14	0	0	0			N37W14	Q	
						S15E52	1	0	0			S15E52	Q	
						S21E07	0	0	0			S21E07	Q	
						S22E18	0	0	0			S22E18	Q	
248	5	4	311	178	07	N20W47	0	0	0		4	N20W47	Q	PROTON FLARE ALERT 05/XX MAGQUIET
						S21W19	0	0	0			S21W19	Q	
						N16W06	0	0	0			N16W06	Q	
						S30E04	8	0	0			S30E04	P	
						S20E23	0	0	0			S20E23	Q	
						N16W15	2	0	0			N16W15	E	
						S34E21	0	0	0			S34E21	Q	
						N37W27	2	0	0			N37W27	E	
						S14E43	1	1	0			S14E43	Q	
						S21W05	0	0	0			S21W05	Q	
						S21E04	0	0	0			S21E04	Q	
						S18E64	1	0	0			S18E64	Q	
249	6	5	296	177	06	N20W60	2	0	0		5	N20W60	Q	PROTON FLARE ALERT 06/XX MAGQUIET
						S21W33	0	0	0			S21W33	Q	
						N16W18	1	0	0			N16W18	P	
						S30W08	4	0	0			S30W08	P	
						S20E08	0	0	0			S20E08	Q	
						N16W27	0	0	0			N16W27	P	
						S35E06	0	0	0			S35E06	Q	
						N36W42	4	0	0			N36W42	Q	
						S15E27	0	0	0			S15E27	Q	
						S25W13	0	0	0			S25W13	Q	
						S21W09	4	0	0			S21W09	A	
						S18E51	1	0	0			S18E51	Q	
						N33E73	7	0	0			N33E73	A	
250	7	6	302	180	10	N19W74	1	0	0	PRESTO TOYOKAWA	6	N19W74	Q	PROTON FLARE ALERT 06 MAGQUIET
						S23W46	1	0	0	06/0245Z TENFLARE		S23W46	Q	
						N16W29	0	0	0	150 FLUX UNITS		N16W29	Q	
						S31W20	8	0	0	06/0220Z DURATION		S31W20	P	
						S19W03	0	0	0	10 MINUTES		S19W03	Q	
						N16W40	2	0	0	40 PERCENT		N16W40	E	
						S35W07	1	0	0			S35W07	Q	
						N36W54	0	0	0			N36W54	Q	
						S15E18	0	0	0			S15E18	Q	
						S22W22	10	0	0			S22W22	A	
						S18E38	0	0	0			S18E38	Q	
						N32E66	3	0	0			N32E66	E	

ALERT PERIODS

INTERNATIONAL URSIGRAM
AND WORLD DAYS SERVICE

SEPTEMBER 1978

SUMMARY OF THE GEOALERT WWA MESSAGES

Message serial number	Date of issue	Date of obser-vation	Wolf number	10 cm solar flux	A index	Active Regions				Outstanding events	Forecasts			Alert Situations
						Location	No. of Flares				Date	Location	Desc*	
						Lat-Long	Total	M	X			Lat-Long		
251	8	7	233	175	04	S24W62	0	0	0		7	S24W62	Q	SOLALERT 08/09 MAGALERT 08/XX
						N16W47	1	0	0			N16W47	Q	
						S31W35	6	0	0			S31W35	C.P.	
						N18W59	2	0	0			N18W59	C.A.	
						N38W72	0	0	0			N38W72	Q	
						S23W36	3	0	0			S23W36	D.A.	
						S30E13	0	0	0			S30E13	Q	
						N32E54	3	0	0			N32E54	E	
252	9	8	197	167	24	N15W61	1	0	0		8	N15W61	Q	SOLALERT 09/XX MAGALERT 09/XX
						S30W45	3	0	0			S30W45	A	
						N17W74	4	0	0			N17W74	E	
						S22W50	7	0	0			S22W50	A	
						S16E11	0	0	0			S16E11	Q	
						N32E39	1	0	0			N32E39	Q	
						N19W42	0	0	0			N19W42	Q	
						N15E69	0	0	0			N15E69	Q	
253	10	9	209	159	16	N15W75	0	0	0		9	N15W75	Q	SOLALERT 10/XX MAGALERT MINOR 10/XX
						S30W59	3	0	0			S30W59	A	
						N17W85	0	0	0			N17W85	Q	
						N37W94	5	0	0			N37W94	Q	
						S22W64	0	0	0			S22W64	A	
						S19W01	1	0	0			S19W01	Q	
						N32E27	0	0	0			N32E27	A	
						N20W53	0	0	0			N20W53	Q	
						N15E64	0	0	0			N15E64	A	
						S36W41	0	0	0			S36W41	Q	
						S16W25	0	0	0			S16W25	Q	
254	11	10	166	148	10	N15W87	0	0	0		10	N15W87	Q	SOLALERT MAGNIL
						S31W73	3	0	0			S31W73	D.A.	
						S23W77	1	0	0			S23W77	E	
						N32E14	1	0	0			N32E14	Q	
						N18W71	0	0	0			N18W71	Q	
						N16E51	3	0	0			N16E51	Q	
						N38E82	0	0	0			N38E82	Q	
						N20W05	0	0	0			N20W05	Q	
255	12	11	146	141	12	S33W87	0	0	0		11	S33W87	D.A.	SOLALERT MAGQUIET
						S19W49	0	0	0			S19W49	Q	
						S21W88	1	0	0			S21W88	Q	
						N32E03	0	0	0			N32E03	E	
						N16W82	0	0	0			N16W82	Q	
						N17E38	4	0	0			N17E38	Q	
						N37E74	0	0	0			N37E74	Q	
						N30E83	0	0	0			N30E83	Q	
256	13	12	140	137	12	N32W09	0	0	0		12	N32W09	Q	SOLNIL MAGQUIET
						N18E25	2	0	0			N18E25	Q	
						N38E63	1	0	0			N38E63	D.A.	
						N32E71	0	0	0			N32E71	Q	
						N17W20	0	0	0			N17W20	Q	
						S23E13	0	0	0			S23E13	Q	
						S34E82	0	0	0			S34E82	Q	
257	14	13	169	136	06	N32W21	0	0	0		13	N32W21	Q	SOLQUIET MAGQUIET
						N17E13	1	0	0			N17E13	Q	
						N37E49	1	0	0			N37E49	D.A.	
						N27E58	0	0	0			N27E58	E	
						S22W01	0	0	0			S22W01	Q	
						N30E70	0	0	0			N30E70	Q	
						N20E42	0	0	0			N20E42	Q	
						N33E64	3	0	0			N33E64	Q	
						S29E69	0	0	0			S29E69	Q	
						N18W37	0	0	0			N18W37	Q	
258	15	14	198	144	04	N30W34	2	0	0		14	N30W34	Q	SOLQUIET MAGQUIET
						N17E00	0	0	0			N17E00	Q	
						N36E38	0	0	0			N36E38	C.E.	
						N28E43	0	0	0			N28E43	E	
						N18W47	0	0	0			N18W47	Q	
						S22W14	0	0	0			S22W14	Q	
						N29E59	1	0	0			N29E59	C.E.	
						S20E28	0	0	0			S20E28	Q	
						N34E57	1	0	0			N34E57	C.E.	
						S28E55	0	0	0			S28E55	Q	
259	16	15	206	151	02	N30W50	0	0	0		15	N30W50	D.E.	SOLALERT MAGQUIET
						N17W14	0	0	0			N17W14	D.E.	
						N36E24	1	0	0			N36E24	C.E.	
						N29E31	2	0	0			N29E31	E	
						S24W28	0	0	0			S24W28	Q	
						N32E44	0	0	0			N32E44	Q	
						N20E15	0	0	0			N20E15	Q	
						N35E43	4	0	0			N35E43	C.A.	
						S27E45	0	0	0			S27E45	E	
						S16E02	0	0	0			S16E02	Q	
						S19E75	0	0	0			S19E75	D.E.	
						S10E18	0	0	0			S10E18	Q	

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260	17	16	180	160	06	N30W65	0	0	0	PRESTO BOULDER	16	N30W65	Q	SOLALERT MAGQUIET
						N17W28	0	0	0	SOFLARE 2B/C9		N17W28	Q	
						N37E11	2	0	0	N19E14 16/1927Z		N37E11	E	
						N29E17	2	0	0	MAX AT 1959Z END		N29E17	D.A.	
						N31E32	0	0	0	AT 2026Z		N31E32	Q	
						N20E02	0	0	0			N20E02	Q	
						N36E29	3	0	0			N36E29	C.A.	
						S27E32	0	0	0			S27E32	E	
						S16W10	0	0	0			S16W10	Q	
						S20E61	0	0	0			S20E61	Q	
						N17W08	0	0	0			N17W08	Q	
261	18	17	228	160	07	N30W73	0	0	0		17	N30W73	Q	SOLALERT MAGQUIET
						N17W41	0	0	0			N17W41	Q	
						N37E00	0	0	0			N37E00	E	
						N29E07	0	0	0			N29E07	E	
						N31E20	0	0	0			N31E20	Q	
						N20W11	0	0	0			N20W11	Q	
						N36E17	6	2	0			N36E17	A	
						S28E20	2	0	0			S28E20	C.A.	
						S17W22	0	0	0			S17W22	Q	
						S19E49	0	0	0			S19E49	Q	
						N17W21	0	0	0			N17W21	Q	
						N12E47	0	0	0			N12E47	Q	
						N28E76	0	0	0			N28E76	Q	
262	19	18	201	170	02	N16W56	0	0	0		18	N16W56	Q	SOLALERT MAGQUIET
						S17W37	0	0	0			S17W37	Q	
						N37W18	0	0	0			N37W18	E	
						N28W08	0	0	0			N28W08	E	
						N36E04	3	0	0			N36E04	A	
						S28E04	3	0	0			S28E04	D.A.	
						N29E08	0	0	0			N29E08	Q	
						S20E36	0	0	0			S20E36	Q	
						N14E36	0	0	0			N14E36	Q	
						N25E66	0	0	0			N25E66	Q	
						S22E55	0	0	0			S22E55	Q	
263	20	19	234	169	01	N16W70	0	0	0		19	N16W70	Q	SOLALERT MAGQUIET
						S17W52	3	0	0			S17W52	D.A.	
						N37W27	1	0	0			N37W27	Q	
						N28W19	0	0	0			N28W19	Q	
						S28W10	0	0	0			S28W10	C.E.	
						N14E26	0	0	0			N14E26	Q	
						S24E42	0	0	0			S24E42	Q	
						N24E53	1	0	0			N24E53	Q	
						S14E55	1	0	0			S14E55	Q	
						N35W07	2	0	0			N35W07	C.A.	
						N30W02	0	0	0			N30W02	Q	
						S22E21	1	0	0			S22E21	Q	
264	21	20	269	167	03	N17W85	0	0	0		20	N17W85	Q	SOLNIL MAGQUIET
						S17W66	0	0	0			S17W66	Q	
						N37W40	1	0	0			N37W40	Q	
						N28W32	0	0	0			N28W32	Q	
						S28W23	0	0	0			S28W23	Q	
						N36W19	0	0	0			N36W19	E	
						N31W17	0	0	0			N31W17	Q	
						S23E07	0	0	0			S23E07	Q	
						N13E11	1	0	0			N13E11	Q	
						N23E40	1	0	0			N23E40	E	
						S14E40	3	0	0			S14E40	E	
						N27E72	0	0	0			N27E72	Q	
265	22	21	202	172	14	N37W54	0	0	0	PRESTO TOYOKAWA	21	N37W54	Q	SOLALERT MAGQUIET
						N28W46	0	0	0	21/0455Z TENFLARE		N28W46	Q	
						N31W29	0	0	0	520 FLUX UNITS		N31W29	Q	
						N35W31	4	0	0	21/1411Z DURATION		N35W31	C.A.	
						S28W27	0	0	0	20 MINUTES		S28W27	Q	
						S22W05	1	0	0			S22W05	D.A.	
						N14W02	1	0	0			N14W02	Q	
						N23E24	1	1	0			N23E24	C.A.	
						S14E28	0	0	0			S14E28	Q	
						N29E60	0	0	0			N29E60	Q	
266	23	22	183	178	10	N37W67	0	0	0		22	N37W67	Q	SOLALERT MAGQUIET
						N28W58	0	0	0			N28W58	Q	
						N35W43	2	0	0			N35W43	C.A.	
						S21W16	1	0	0			S21W16	D.A.	
						N14W15	0	0	0			N14W15	E	
						N24E12	0	0	0			N24E12	D.A.	
						S13E12	0	0	0			S13E12	E	
						N27E43	3	0	0			N27E43	D.A.	

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267	24	23	263	170	10	N37W81	0	0	0	PRESTO BOULDER	23	N37W81	Q	PROTON FLARE ALERT 24/25
						N28W69	1	0	0	23/1315Z SOFLARE		N28W69	E	MAGALERT 24/26
						N35W55	1	0	1	X1(3B) N35W50		N35W55	D.P.	
						S21W29	0	0	0	0941Z 73 MINUTES		S21W29	E	
						N14W29	0	0	0	DURATION. TENFLARE		N14W29	E	
						N24E01	0	0	0	1300 FLUX UNITS		N24E01	E	
						S12W01	0	0	0	0940Z. COSMIC RAY		S12W01	E	
						N28E28	4	0	0	INCREASE BEGAN 23/		N28E28	D.A.	
						S16W45	0	0	0	1030Z. 10% ABOVE		S16W45	Q	
						S19E64	0	0	0	NORMAL AT 23/1215Z.		S19E64	Q	
						S13E74	0	0	0	PCA BEGAN 23/1245Z 2.5dB ABSORPTION AT 23/1330Z. PROTON EVENT BEGAN AT 23/1035Z. 320 PROTONS/cm²/sec/ster AT GREATER THAN 10 MeV AT 1315Z.		S13E74	Q	
268	25	24	256	158	09	N28W83	0	0	0	PRESTO BOULDER	24	N28W83	Q	PROTON FLARE ALERT 25/XX
						N36W68	0	0	0	24/2344Z SOFLARE		N36W68	D.P.	MAGALERT 25/27
						S14W43	1	1	0	M1(1B) N25W09		S14W43	Q	
						N14W43	0	0	0	24/1718Z WEAK PAR-		N14W43	Q	
						N25W13	2	1	0	ALLEL RIBBONS. TEN-		N25W13	E	
						S12W15	0	0	0	FLARE 190 FLUX		S12W15	Q	
						N28E14	0	0	0	UNITS 24/1720Z		N28E14	D.A.	
						S17W59	0	0	0	DURATION 14 MIN.		S17W59	Q	
						S18E49	0	0	0	PCA MAX OF 9.6dB		S18E49	Q	
						S13E56	0	0	0	AT 24/1800Z. PRO-		S13E56	Q	
						S18W12	0	0	0	TON EVENT MAX OF		S18W12	Q	
						N15E72	0	0	0	2200 PROTONS/cm²/		N15E72	Q	
						N17E76	0	0	0	sec/ster, GREATER THAN 10 MeV AT 24/0400Z.		N17E76	Q	
269	26	25	256	157	24	N35W83	1	0	0		25	N35W83	C.A.	SOLALERT 26/XX MAGALERT 26/27
						S23W57	1	0	0			S23W57	E	
						N14W56	0	0	0			N14W56	Q	
						N25W25	0	0	0			N25W25	E	
						S13W28	0	0	0			S13W28	Q	
						N28E01	0	0	0			N28E01	Q	
						S17W73	0	0	0			S17W73	Q	
						S19E38	0	0	0			S19E38	Q	
						S13W43	0	0	0			S13W43	Q	
						S18W26	0	0	0			S18W26	Q	
						N36E59	0	0	0			N36E59	Q	
						N17E64	0	0	0			N17E64	Q	
						N31W37	0	0	0			N31W37	Q	
						S13E31	0	0	0			S13E31	Q	
270	27	26	233	148	24	S22W69	0	0	0		26	S22W69	Q	SOLALERT MAGALERT 27/29
						N14W69	0	0	0			N14W69	E	
						N25W36	0	0	0			N25W36	E	
						S13W41	0	0	0			S13W41	Q	
						N28W10	0	0	0			N28W10	E	
						S18E25	0	0	0			S18E25	Q	
						S12E28	0	0	0			S12E28	Q	
						S19W39	1	0	0			S19W39	Q	
						N35E46	0	0	0			N35E46	Q	
						N17E51	0	0	0			N17E51	Q	
						S13E14	0	0	0			S13E14	Q	
						N20W25	0	0	0			N20W25	Q	
						S17E41	0	0	0			S17E41	Q	
						N38E63	0	0	0			N38E63	Q	
						S25E70	0	0	0			S25E70	E	
271	28	27	230	152	25	N14W79	1	0	0	PRESTO MEUDON	27	N14W79	Q	SOLALERT MAGALERT 28/29
						N25W49	0	0	0	27/1518Z METRIC		N25W49	Q	
						S14W56	0	0	0	TYPE IV BURST		S14W56	Q	
						N30W23	4	3	0	NANCAY/TEN CM		N30W23	A	
						S18E12	0	0	0	BURST NERA SID		S18E12	Q	
						S12E16	0	0	0	POITIERS/FLARE AT		S12E16	Q	
						S19W51	0	0	0	N27W20 PRESTO		S19W51	Q	
						N36E35	0	0	0	BOULDER 27/1520Z		N36E35	Q	
						N18E38	0	0	0	TENFLARE 420 FLUX		N18E38	Q	
						N12W00	0	0	0	UNITS DURATION 50		N12W00	Q	
						N20W38	0	0	0	MINUTES M3/2N		N20W38	Q	
						S17E28	0	0	0	FLARE.		S17E28	Q	
						N37E51	0	0	0			N37E51	Q	
						S22E54	0	0	0			S22E54	Q	
						S14W48	0	0	0			S14W48	Q	

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272	29	28	213	147	26	N28W62	0	0	0		28	N28W62	Q	SOLNIL MAGALERT 29/30
						S14W70	0	0	0			S14W70	Q	
						N30W37	1	0	0			N30W37	C.A.	
						S18W00	0	0	0			S18W00	Q	
						S12W00	0	0	0			S12W00	Q	
						S18W64	0	0	0			S18W64	E	
						N35E22	0	0	0			N35E22	Q	
						N18E25	0	0	0			N18E25	Q	
						S12W13	0	0	0			S12W13	Q	
						N20W51	0	0	0			N20W51	Q	
						S17E14	0	0	0			S17E14	Q	
						N37E38	3	0	0			N37E38	E	
						S22E41	0	0	0			S22E41	E	
						S13W61	0	0	0			S13W61	Q	
						S17E15	0	0	0			S17E15	Q	
						S17E67	0	0	0			S17E67	Q	
273	30	29	199	147	65	S13W84	0	0	0	PRESTO BOULDER	29	S13W84	Q	SOLALERT 30/01 MAGALERT 30/XX
						N30W50	2	0	0	29/1410Z STRONG		N30W50	E	
						S13W13	0	0	0	MAGSTORM IN PROG-		S13W13	Q	
						S18W78	0	0	0	RESS SSC 29/0300Z		S18W78	Q	
						N35E10	0	0	0			N35E10	Q	
						N17E12	0	0	0			N17E12	Q	
						S12W27	0	0	0			S12W27	Q	
						N20W65	0	0	0			N20W65	Q	
						S17W02	0	0	0			S17W02	Q	
						N38E24	7	0	0			N38E24	C.A.	
						S22E29	0	0	0			S22E29	Q	
						S18E03	0	0	0			S18E03	Q	
						S18E55	0	0	0			S18E55	Q	
						S14E75	0	0	0			S14E75	Q	
274	01	30	196	142	09	N31W63	0	0	0		30	N31W63	Q	SOLNIL MAGNIL
						S17W14	0	0	0			S17W14	Q	
						S17W10	0	0	0			S17W10	Q	
						N36W03	0	0	0			N36W03	Q	
						N18W02	0	0	0			N18W02	Q	
						N39E10	0	0	0			N39E10	Q	
						S21E17	0	0	0			S21E17	Q	
						S12E27	0	0	0			S12E27	Q	
						N20E28	0	0	0			N20E28	Q	
						S14E60	2	0	0			S14E60	E	
						N17E64	1	0	0			N17E64	Q	

* Q=Quiet E=Eruptive A=Active P=Proton C=Caution D=Doubtful O.G.=Other Groups MF=Major Flare

RELATIVE SUNSPOT NUMBERS

ZURICH, R_Z

	1977 FINAL			1978 PROVISIONAL								
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	43	44	20	84	128	93	70	77	119	46	42	127
2	37	40	20	88	120	83	68	85	93	61	48	167
3	47	25	31	102	131	95	71	91	74	47	38	151
4	47	22	47	102	138	103	75	76	68	34	62	161
5	48	25	58	73	137	76	94	74	51	54	74	175
6	55	27	58	69	129	67	92	73	29	57	66	178
7	57	34	55	42	121	90	88	78	39	84	58	148
8	52	27	45	36	89	99	105	56	45	105	62	120
9	47	31	58	36	94	85	126	59	36	108	64	109
10	38	25	75	15	96	92	111	57	29	115	67	105
11	28	26	71	18	95	85	109	63	57	127	58	84
12	33	27	62	26	92	78	107	65	62	111	71	72
13	53	28	44	26	93	65	93	72	56	114	85	88
14	48	31	37	36	82	62	75	72	62	109	93	113
15	54	39	41	30	59	72	61	78	89	102	72	133
16	53	49	39	23	64	70	85	91	97	110	42	148
17	51	51	29	24	56	66	99	79	103	98	49	136
18	50	54	33	14	55	72	100	85	115	78	53	158
19	54	52	40	8	53	64	107	84	109	74	42	150
20	54	38	23	7	52	51	115	74	109	76	28	163
21	42	32	23	28	63	77	112	73	154	77	26	172
22	35	28	17	30	74	82	109	73	158	48	36	148
23	30	24	23	43	69	85	105	72	158	33	45	156
24	29	18	31	37	78	82	102	82	154	38	45	167
25	28	10	35	32	94	70	139	86	135	30	54	163
26	30	9	41	47	86	53	115	84	152	13	37	152
27	38	14	50	69	79	50	98	97	134	21	55	140
28	37	9	45	79	88	49	75	90	130	31	58	122
29	42	10	58	90		48	72	103	115	48	59	122
30	45	23	64	104		44	70	107	99	35	70	91
31	52		67	118		70		109		36	100	
MEAN	43.8	29.1	43.2	49.3	89.8	73.5	94.7	79.3	94.1	68.4	56.7	137.3

1977 yearly mean = 27.5

DAILY SOLAR FLUX AT 2800 MHz
OTTAWA ARO

FLUX ADJUSTED TO 1 A.U., S_a

	1977			1978								
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	93.8*	94.4	88.4	126.9*	139.1	136.3	130.0	181.4	149.1	142.9	106.0	159.8
2	93.2	93.6	91.2	133.9	152.6	141.1	129.8	183.0	147.0*	127.6	106.0	171.7*
3	97.4	90.4	93.7	130.2	156.6*	146.6	134.5	182.2A	130.8	116.5	109.6	167.0
4	98.8	89.4	95.9	124.8	154.0	148.4	143.3*	178.4	118.6	117.4	112.3	174.4*
5	104.0*	90.6	96.9	119.2	159.8	154.5	146.7*	173.9*	116.9	118.9	117.6	179.4
6	103.5	91.1	102.0*	118.7*	156.1	162.8	145.3*	173.1	109.8	119.3*	122.6	181.1
7	105.5	98.2	105.5	111.6	157.3	165.2	146.9	162.6*	110.6	128.9	128.2	177.5
8	103.8	90.3	106.7	102.8	157.0*	168.7	148.6	143.4	109.3	135.9	130.6	167.1
9	100.7	91.1	112.6*	97.0	155.2	163.7	156.1	135.1	106.5	147.1*	128.1*	157.6*
10	96.4	93.1	114.7	93.5	148.7	179.1	155.4	129.5	108.4	156.0*	127.5	149.8
11	95.3	94.9	107.4	93.1	154.2	175.2	162.8*	133.8	113.2	163.2*	121.7	141.5
12	100.8	91.4	111.0	92.1	159.0	169.8	156.2	138.2	116.4*	174.2*	124.5	138.5
13	98.5	94.0	100.6	90.3	151.2	168.9	145.6	140.2	120.3*	165.5	134.9	136.8
14	98.9	97.9	93.7*	88.6	148.4	160.5	139.1	143.7	126.4*	163.1	132.7	143.5*
15	98.2	97.9	92.5	89.6	136.8	154.2	141.4	146.1	132.5	169.5	130.0*	152.6
16	96.8	95.9	92.5	86.4	130.2	143.3	137.6	147.8*	139.5*	163.4	123.6	161.5
17	94.9	100.4	91.1	83.8	125.9	135.4	133.4	143.8	149.0	159.5	119.3*	161.8
18	95.4	102.0*	93.6	84.7	124.9	132.3	134.1	135.6	153.5*	154.1*	115.6	169.3*
19	105.0	99.2	91.0	85.4	119.1	124.1	139.5*	133.6	162.0*	148.6	111.6	168.8*
20	99.6*	95.7*	88.7	87.0	122.2	125.3	138.1	132.3*	174.2	142.9*	107.5	168.6
21	98.6*	92.8	87.8	91.4	122.2	118.2	138.4*	132.7	185.4*	140.2	104.8	172.5
22	93.9	89.3	89.9	96.9	127.7	117.0	146.4	135.7*	198.3	127.0	106.0	171.5*
23	87.3	88.0	91.2	99.6	131.8	116.4	162.9	142.9*	196.7	123.4*	104.1	165.5*
24	88.3	86.7	93.9	100.4	135.6	117.5	159.8	146.5*	194.8	118.5	105.4	158.9
25	88.1	84.7	96.3	103.3	139.3	118.2	159.1*	147.6	183.5	113.7	104.2	157.2
26	88.6	84.1	99.3	112.7	134.8	112.5	166.7	152.8	182.4*	112.2	100.7	148.5
27	88.5	83.8	98.3	116.4	137.5	114.1	172.8	150.6*	179.5	110.8	107.3*	146.2*
28	90.3*	85.6	98.9	127.7*	135.4	112.7	176.6*	147.1*	174.1	109.9	107.7*	147.8
29	90.3	85.6	105.6*	132.2*		111.1	185.2	148.6	167.4	109.2	116.2	148.1
30	94.9	85.3	114.7	134.9		115.4*	182.1*	147.2*	154.6*	109.2	124.1	142.6
31	95.9		120.2	133.3*		124.5		152.6		108.8	133.9*	
MEAN	96.3	91.6	98.9	106.1	141.8	140.3	150.5	149.7	146.8	135.4	116.9	159.6

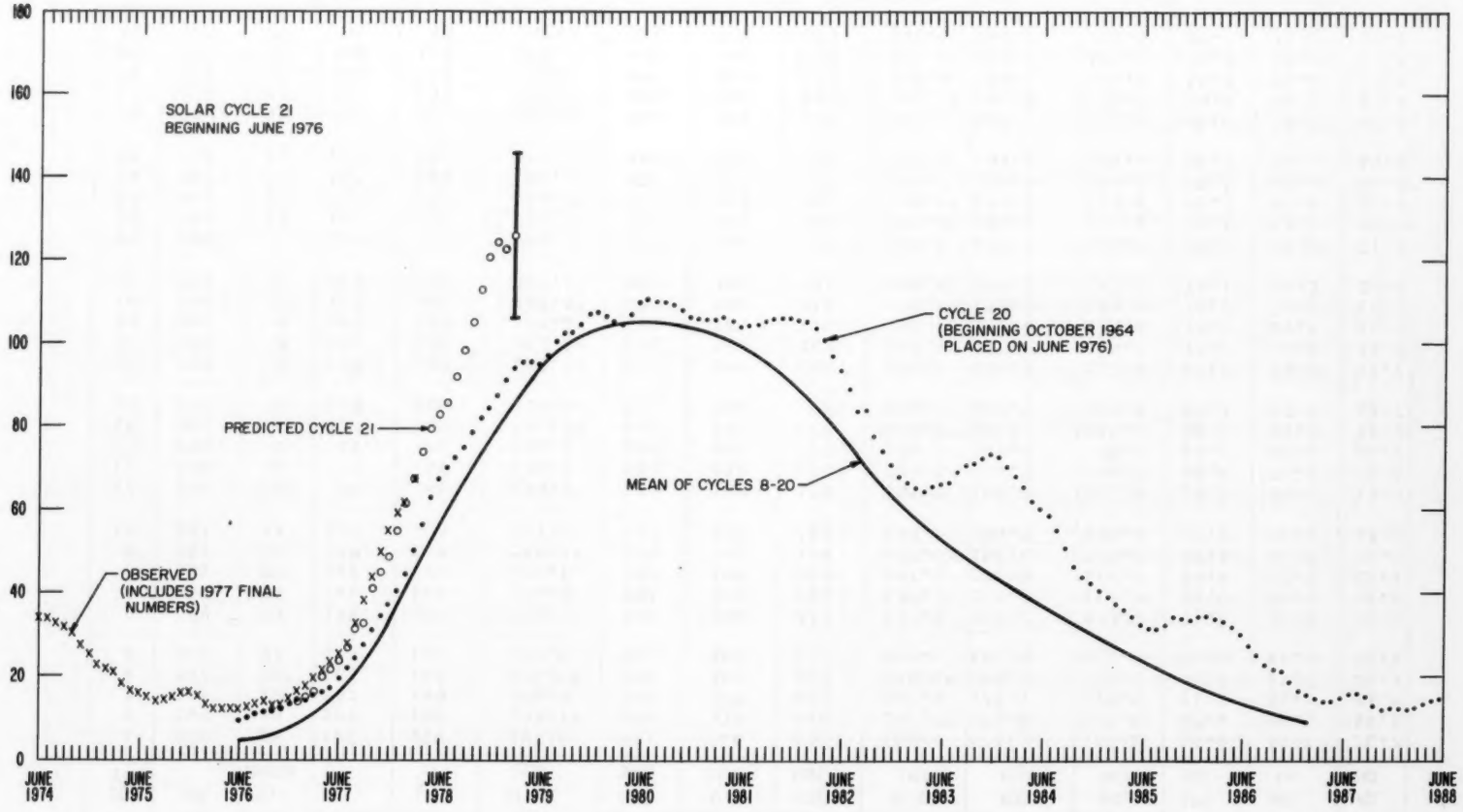
* adjusted for burst
A = interpolated data point

DAILY SOLAR INDICES

SEPTEMBER 1978

SEP 1978	YEAR DAY	BARTELS 27-DAY CYCLE NUMBER	SUNSPOT NUMBERS		OBSERVED FLUX OTTAWA 2800	SOLAR FLUX ADJUSTED TO 1 A.U.								
			R_Z	$R_{A'}$		AFGL 15400	AFGL 8800	AFGL 4995	OTTAWA 2800	AFGL 2695	AFGL 1415	AFGL 606	AFGL 410	AFGL 245
1	244	18	127	110	157.0	581	344	202	159.8	171.1	104.1	66.4	35.7	16.2
2	245	19	167	152	168.7*	589	373	210	171.7*	172.8	115.9	67.4	33.4	15.6
3	246	20	151	149	164.2	581	373	211	167.0	178.7	113.5	71.8	36.1	23.5
4	247	21	161	143	171.5*	594	384	219	174.4*	188.9	122.7	75.7	37.4	25.8
5	248	22	175	166	176.6	581	384	215	179.4	181.9	123.4	81.6	50.4	85.4
6	249	23	178	157	178.2	582	354	215	181.1	190.2	123.3	76.5	39.6	33.9
7	250	24	148	136	174.9	592	366	216	177.5	185.8	117.7	73.5	34.9	17.0
8	251	25	120	124	164.6	592	345	203	167.1	178.4	116.2	70.9	32.5	20.1
9	252	26	109	108	155.4*	589	342	190	157.6*	167.6	109.0	67.8	31.9	16.8
10	253	27	105	90	147.7	587	337	181	149.8	154.9	104.3	67.2	32.0	13.6
11	254	1	84	66	139.7	586	332	172	141.5	146.9	101.8	65.2	34.0	15.3
12	255	2	72	65	136.7	583	332	170	138.5	140.3	99.0	65.8	31.0	15.6
13	256	3	88	81	136.2	583	331	170	138.0	143.7	99.6	66.2	32.1	15.2
14	257	4	113	95	141.7*	583	333	179	143.5*	151.1	104.6	66.8	32.1	12.8
15	258	5	133	115	150.9	580	346	190	152.6	157.5	112.9	69.3	30.9	10.7
16	259	6	148	129	159.7	577	344	197	161.5	164.9	112.8	67.7	29.8	11.7
17	260	7	136	135	160.2	594	365	209	161.8	173.2	115.1	73.1	31.4	10.3
18	261	8	158	139	167.8*	579	364	212	169.3*	179.0	124.6	70.8	29.7	14.5
19	262	9	150	142	167.3*	590	360	214	168.8*	173.0	118.1	70.0	31.0	17.2
20	263	10	163	166	167.3	588	346	201	168.6	176.2	117.3	70.1	36.3	21.8
21	264	11	172	159	171.1	574	340	195	172.5	173.3	121.7	73.0	32.7	31.7
22	265	12	148	146	170.3*	581	350	200	171.5*	184.2	131.1	86.8	53.9	56.4
23	266	13	156	152	164.3*	598	353	202	165.5*	177.1	123.0	75.7	35.5	22.8
24	267	14	167	156	158.0	591	339	187	158.9	161.5	114.6	69.1	32.4	16.9
25	268	15	163	166	156.4	585	336	187	157.2	165.1	114.4	66.7	31.1	15.3
26	269	16	152	154	147.8	586	334	187	148.5	157.7	111.1	65.6	32.7	17.5
27	270	17	140	133	145.6*	604	344	187	146.2*	161.5	115.3	69.0	34.0	21.4
28	271	18	122	123	147.2	595	340	180	147.8	155.1	114.9	69.0	25.6	11.5
29	272	19	122	100	147.7	591	333	174	148.1	152.8	109.2	68.9	30.4	11.4
30	273	20	91	86	142.2	582	327	169	142.6	146.6	113.2	69.7	31.7	11.6
MEAN			137.3	12.8	157.9	587	348	195	159.6	167.2	110.8	70.6	34.1	21.0

* Adjusted for burst.



OBSERVED AND PREDICTED SUNSPOT NUMBERS

SMOOTHED OBSERVED AND PREDICTED SUNSPOT NUMBERS
CYCLE 21

MONTH	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1976	15.2	13.2	12.2	12.6	12.5	12.2	12.9	14.0	14.3	13.4	13.5	14.8
1977	16.7	18.1	20.0	22.2	24.2	26.3	28.8	33.0	38.5	44.6	50.5	55.4
1978	59.6	62.7	67.7	73.7	80.4	86.3	91.0	95.3	99.4	103.0	107.4	113.3
				(2)	(5)	(8)	(11)	(14)	(17)	(18)	(17)	(16)
1979	118.2	122.5	126.4	129.1	131.7	135.8	140.0	142.7	144.5	145.4	145.6	145.0
	(15)	(16)	(20)	(24)	(27)	(29)	(31)	(34)	(36)	(38)	(40)	(41)
1980	143.8	142.6	142.1	142.6	142.0	139.0	135.9	133.3	131.8	131.0	129.6	128.1
	(41)	(41)	(39)	(39)	(40)	(42)	(44)	(45)	(45)	(45)	(47)	(50)
1981	127.6	126.9	124.6	121.8	119.6	117.5	116.5	116.3	115.5	114.2	112.1	109.3
	(53)	(53)	(51)	(50)	(49)	(49)	(47)	(46)	(45)	(45)	(44)	(41)
1982	106.5	103.4	100.9	99.0	96.7	94.2	90.5	86.3	82.5	78.4	75.4	71.9
	(39)	(38)	(37)	(35)	(34)	(32)	(31)	(28)	(26)	(23)	(22)	(21)
1983	68.0	65.2	63.3	61.2	59.2	57.0	55.1	53.2	51.4	50.1	49.1	48.3
	(21)	(21)	(22)	(22)	(22)	(23)	(24)	(26)	(27)	(29)	(30)	(30)
1984	47.3	45.6	43.0	39.9	37.4	36.1	35.1	33.6	32.2	31.2	30.0	28.5
	(31)	(30)	(29)	(28)	(29)	(31)	(31)	(31)	(30)	(29)	(27)	(27)
1985	27.4	26.4	25.5	25.0	24.3	23.4	22.7	21.9	21.1	20.2	19.3	18.7
	(26)	(26)	(26)	(26)	(25)	(24)	(23)	(22)	(22)	(23)	(23)	(24)
1986	18.3	17.8	17.1	16.2	15.1	14.0	13.2	12.6	12.4	12.1	11.9	11.8
	(24)	(24)	(23)	(22)	(21)	(20)	(19)	(18)	(17)	(16)	(15)	(13)
1987	12.1	12.6	13.4	14.3	15.3	16.2	17.1					
	(11)	(11)	(11)	(11)	(12)	(13)	(14)					

The table gives observed Zürich smoothed sunspot numbers for Cycle 21 up to the one calculated from the latest observed data, marked by a vertical bar. They are based on final Zürich numbers through 1977 and provisional Zürich numbers thereafter. Some of these data after the June 1976 value will change slightly when final data for 1978 are received. The numbers after the vertical bar are predictions by the McNish-Lincoln method (see *Explanation of Data Reports*, February 1978). Shown in parentheses are the corresponding absolute values of the 90% confidence interval, an indication of the uncertainty above and below the predicted number.

The McNish-Lincoln method is very sensitive to the identification of a minimum epoch. In SGD 390-401 issues, the Cycle 21 predictions were based on March 1976 as the minimum epoch. Latest studies, including one published by Waldmeier, show that June 1976 is the more appropriate epoch of minimum. Thus, we have adopted a June 1976 mimimum.

*Prediction of Sunspot Maximum -- The McNish-Lincoln prediction method is recommended for predictions up to only one year ahead. From that point, the predictions regress rapidly towards the mean value. Combining this McNish-Lincoln prediction of sunspot maximum with the Ohl method (as done by Sargent, see *Explanation of Data Reports*, February 1978) indicates that the most probable value for sunspot maximum is 149 ± 35.

Hα SOLAR FLARES

SEPTEMBER 1978

OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS
	DATE SEP	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY	MIN.		COORD.	TYPE	TIME UT	MEAS. AREA Millionths of Disk	CORR. AREA Sq. Deg.	
PALE	01	0037	0052	0110	N20	E 3	.441		1.3	33	SN	3	C		42		DE
PALE	01	0101	0102	0108	S21	E32	.565		3.4	7	SB	3	C		54		FDE
PALE	01	0212	0213	0217	N15	W25	.537		30.2	5	SF	3	C		32		DE
PALE	01	0235E	0308	0315	N17	E45	.767		4.5	40D	SN	2	C		30		FDE
PALE	01	0255	0255	0259	N20	E 2	.440		1.3	4	SN	3	C		21		DE
PALE	01	0323	0324	0340	N20	E 2	.440		1.3	17	SN	2	C		75		FDE
PALE	01	0325	0330	0335	N17	E45	.767		4.5	10	SN	2	C		80		FDE
TEHR	01	0610	0623	0631	S30	E56	.846		5.5	21	SB	1	C		64		F
TEHR	01	0734	0737	0751	S30	E54	.829		5.4	17	SB	1	C		127		FDE
RAMY	01	1135	1137	1208	S27	E45	.739		4.9	33	SB	4	C		94		
RAMY	01	1149	1242	1320	S33	E65	.912		6.4	91	SB	4	C		61		HDE
TEHR	01	1221E	1222	1231	S30	E54	.829		5.6	10D	SB	2	C		127		F
MCMA	01	1237	1242	1300	S38	E72	.952	15509	6.9	23	SN		C	1242	25	1.0	EH
TEHR	01	1244E	1247	1305	S30	E62	.890		6.2	21D	SB	2	C		64		FDE
MCMA	01	1310	1312	1340	S32	E50	.802	15509	5.3	30	SN		C	1312	30	.6	E
RAMY	01	1313	1347	1429	N18	E35	.670		4.2	76	SB	4	C		47		
RAMY	01	1313	1313	1320	S28	E46	.752		5.0	7	SB	4	C		84		F
MCMA	01	1318	1322	1343	N18	W06	.418	15496	1.1	25	SF		C	1322	50	.5	E
RAMY	01	1323	1323	1326	N19	W 4	.428		1.3	3	SN	4	C		31		
MCMA	01	1404	1408	1419	S32	E50	.802	15509	5.3	15	SF		C	1408	40	.8	E
RAMY	01	1430	1430	1437	N18	E35	.670		4.2	7	SB	4	C		24		
MCMA	01	1437	1441	1505	N22	E57	.886	15517	5.9	28	SN		C	1441	40	.7	EH
RAMY	01	1452	1458	1523	N18	E34	.659		4.2	31	SN	4	C		23		
MCMA	01	1518	1519	1525	S32	E39	.703	15509	4.6	7	SF		C	1519	30	.5	E
RAMY	01	1627	1632	1649D	S28	E44	.732		5.0	22D	SB	4	C		119		DE
MCMA	01	1628E		1720D	S33	E48	.788	15509	5.3	52D	SN		C	1633	60	1.2	E
MCMA	01	1708	1714	1725	S39	E69	.939	15509	6.9	17	SB		C	1714	40	1.2	EH
RAMY	01	1711	1712	1725D	S32	E60	.879		6.2	14D	SB	4	C		45		DE H
MCMA	01	1722	1723	1755	N15	E30	.594	15508	4.0	33	SN		C	1723	30	.4	EH
HOLL	01	1729	1734	1740	N17	E28	.588		3.8	11	SF	3	C		0		
MCMA	01	1807	1812	1825	S39	E68	.935	15509	6.9	18	SN		C	1812	40	1.2	E
MCMA	01	1836	1837	1841	N15	E41	.716	15508	4.9	5	SN		C	1837	50	.7	DHV
HOLL	01	1839	1839	1844	N17	E27	.577		3.8	5	SF	3	C		0		
HOLL	01	1842	1850	1856	S30	E43	.731		5.0	14	SN	3	C		30		
MCMA	01	2011	2013	2017	N15	E41	.716	15508	4.9	6	SN		C	2013	30	.4	D
PALE	01	2022E	2034U	2042D	S30	E43	.731		5.1	20D	SN	3	C		21		FDE
PALE	01	2144	2154	2259	S30	E42	.722		5.1	75	SB	3	C		52		FDE
PALE	02	0004	0011	0158	S30	E42	.721	15509	5.2	114	1B	3	C		154		U F
PALE	02	0004	0125	0158	S30	E42	.721		5.2	114	SN	3	C		122		U F
PALE	02	0004	0157	0158	S30	E42	.721		5.2	114	SN	3	C		122		U F
TEHR	02	0546E	0550	0614	S29	E40	.696		5.2	28D	SB	2	C		127		FDE
MITK	02	0551E	0559	0643D	S33	E44	.753	15509	5.5	52D	2B		C	0559	380	7.2	E
BUCA	02	0557E		0626	S31	E42	.726	15509	5.4	29D	2N		P	0600	429	7.9	BE
ISTA	02	0740E		0757	N18	E23	.546		4.0	17D	SN						E
ISTA	02	0740E		0800	S30	E43	.731		5.5	20D	SF						Z
ISTA	02	0820E		0824	S30	E39	.692		5.3	4D	SF						E
ISTA	02	0822E		0840D	N17	E25	.557		4.2	18D	SN						D
TEHR	02	1047	1053	1120	S29	E40	.696		5.4	33	SB	2	C		127		F
RAMY	02	1056	1059	1115D	S30	E38	.682	15509	5.3	19D	1B	3	C		211		F
TEHR	02	1131E	1134	1145D	S29	E40	.696	15509	5.5	14D	1B	2	C		159		F
RAMY	02	1144E	1146	1222	S30	E37	.672	15509	5.3	38D	1B	4	C		226		DE
RAMY	02	1147	1150	1204	N20	W17	.515		1.2	17	SB	4	C		62		
MCMA	02	1204E		1225D	S38	E52	.837	15509	6.4	21D	1F		C	1204	100	2.4	BE
MCMA	02	1204E	1209	1220D	N16	E18	.475	15508	3.9	16D	SF		C	1209	60	.7	E
RAMY	02	1220	1223	1230	N18	E25	.566		4.4	10	SB	4	C		23		
MCMA	02	1226	1229	1250	S38	E56	.864	15509	6.7	24	SN		C	1229	40	1.0	E
RAMY	02	1229	1230	1242	S32	E53	.826		6.5	13	SB	4	C		37		
TEHR	02	1246E	1250	1255D	S29	E40	.696		5.5	9D	SB	2	V		127		FDE
MCMA	02	1247	1254	1307	N13	E19	.452	15508	4.0	20	SB		C	1254	100	1.1	EV
TEHR	02	1249	1253	1305	N15	E23	.516		4.3	16	SB	2	C		127		
RAMY	02	1258	1308	1415	S30	E38	.682	15509	5.4	77	1B	4	C		184		
MCMA	02	1305	1310	1330	S34	E41	.732	15509	5.6	25	SB		C	1310	50	.9	E
TEHR	02	1305E	1308	1314	S30	E40	.701		5.5	9D	SB	2	C		95		
MCMA	02	1354E	1358	1408	S30	E90	.999	15518	9.3	14D	SF		C	1358			A
RAMY	02	1415	1425	1554	S30	E37	.672	15509	5.4	99	1B	4	C		283		DE
MCMA	02	1420	1424	1600	S35	E36	.694	15509	5.3	100	SB		C	1424	60	1.0	E
MCMA	02	1431	1432	1435	N18	E28	.597	15508	4.7	4	SF		C	1432	30	.4	
MCMA	02	1450	1452	1500D	N12	E23	.487	15508	4.3	10D	SF		C	1452	30	.3	D
RAMY	02	1451	1451	1458	N16	E26	.558		4.6	7	SN	4	C		34		
MCMA	02	1513	1516	1539	N14	E20	.473	15508	4.1	26	SN		C	1516	50	.5	E
MCMA	02	1600	1620	1650	N17	W47	.787	15493	30.1	50	SF		C	1620	50	.8	E

Hα SOLAR FLARES

SEPTEMBER 1978

OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS
	DATE SEP	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
MCMA	02	1644	1648	1730	S32	E23	.554	15509	4.4	46	SN		C	1648	35	.5	D
MCMA	02	1644	1654	1720	N12	E22	.475	15508	4.3	36	SN		C	1654	40	.4	E
RAMY	02	1648	1652	1700	N16	E25	.547		4.6	12	SN	4	C		24		
MCMA	02	1810E	1815	1827	S33	E36	.681	15509	5.5	17D	SN		C	1815	60	1.0	E
PALE	02	1812	1815	1853	S30	E32	.622		5.2	41	SB	3	C		66		FDE
MCMA	02	1832		1905	N14	E13	.405	15508	3.7	33	SN		C	1851	60	.6	E
PALE	02	1902	1906	1925	S30	E32	.622		5.2	23	SB	3	C		66		U
MCMA	02	1902	1906	1915	S33	E34	.662	15509	5.3	13	SN		C	1906	50	.8	E
PALE	02	1928	1929	1940	S30	E32	.622		5.2	12	SN	3	C		29		FDE
PALE	02	1944	1944	1949	S30	E32	.622		5.2	5	SN	3	C		27		DE
PALE	02	1952	2011	2017	S30	E31	.612		5.2	25	SB	3	C		27		DE
RAMY	02	2008	2037	2042	S30	E34	.642		5.4	34	SN	3	C		30		
RAMY	02	2008	2010	2042	S30	E34	.642		5.4	34	SB	3	C		24		
HOLL	02	2008	2012	2019	S30	E30	.602		5.1	11	SB	3	C		17		FDE
HOLL	02	2018	2020	2032	S33	E50	.805		6.6	14	SN	3	C		18		FDE
RAMY	02	2019	2019	2021	S33	E47	.779		6.4	2	SN	3	C		16		
PALE	02	2019	2019	2028	S34	E50	.808		6.6	9	SN	3	C		14		F
PALE	02	2020	2020	2030	N20	W21	.549		1.3	10	SN	3	C		89		U
RAMY	02	2020	2021	2026	N19	W20	.528		1.3	6	SB	3	C		144		
HOLL	02	2020	2021	2025	N22	W22	.579		1.2	5	SB	3	C		112		FDE
PALE	02	2034	2047	2211	S30	E31	.612		5.2	97	SB	3	C		146		DE F
HOLL	02	2035	2049	2203	S30	E29	.592		5.0	88	SB	3	C		118		FDE
PALE	02	2347	2355	0047	S30	E29	.592		5.2	60	SB	3	C		140		DE F
PALE	03	0213	0215	0249	S32	E44	.748	15519	6.4	36	1B	3	C		242		DE F
TEHR	03	0745	0749	0754	S31	E26	.571		5.3	9	SN	2	C		95		UDE
TEHR	03	0935	0938	0946	S31	E24	.552		5.2	11	SN	2	C		95		UDE
RAMY	03	1604	1604	1626	S12	E59	.852		8.1	22	SN	4	C		14		FDE
RAMY	03	1604	1605	1622	S30	E23	.533		5.4	18	SB	4	C		37		FDE
PALE	03	1655E	1655U	1701	S32	E24	.562		5.5	6D	SB	3	C		31		F
PALE	03	1746	1748	1804	S30	E21	.515		5.3	18	SB	3	C		44		FDE
PALE	03	1806	1807	1812	S30	E21	.515		5.3	6	SB	3	C		29		FDE
PALE	03	1822E	1823	1825	N16	E11	.418		4.6	3D	SB	3	C		29		F
PALE	03	1828	2017	2036	S30	E20	.506		5.3	128	SB	3	C		120		FDE
PALE	03	1828	1838	1916D	S30	E21	.515		5.3	48D	SB	3	C		68		FDE
HOLL	03	1838	1850	1900	S30	E20	.506		5.3	22	SB	3	C		48		F
MCMA	03	1840E		1843D	S33	E25	.581	15509	5.7	3D	SN		P	1841	80	1.2	E
HOLL	03	1906	1906	1910	S30	E20	.506		5.3	4	SN	3	C		20		
HOLL	03	1921	1926	1948	S30	E19	.497		5.2	27	SB	3	C		88		U F
MCMA	03	1925E		1932D	S33	E24	.572	15509	5.6	7D	SB		C	1925	120	1.7	E
PALE	03	2039	2041	2048	S30	E20	.506		5.4	9	SB	3	C		61		FDE
PALE	03	2158	2158	2210	S21	W 6	.275		3.5	12	SN	3	C		25		F
HOLL	03	2159	2200	2211	S20	W 8	.274		3.3	12	SN	3	C		35		
PALE	03	2223	2226U	2227D	S30	E18	.489		5.3	4D	SB	3	C		56		DE F
PALE	03	2318	0003	0020	S30	E18	.489		5.3	62	SB	3	C		78		F
HOLL	03	2326	2327	2330	S30	E17	.481		5.3	4	SB	3	C		18		
PALE	03	2348	2358U	0020	S36	E35	.692		6.6	32	SB	3	C		150		DE F
PALE	04	0149	0154	0209	S30	E17	.480		5.4	20	SB	3	C		88		DE F
PALE	04	0259	0308	0324	S30	E16	.472		5.3	25	SB	3	C		42		DE F
PALE	04	0408	0408	0416D	S30	E16	.472		5.4	8D	SN	3	C		69		DE F
TEHR	04	0420E	0440	0507	S29	E15	.451		5.3	47D	SB	2	C		127		U F
BUCA	04	0800	0813	0819	S31	E15	.477	15509	5.5	19	1F		C	0813	214	3.0	
BUCA	04	0812	0827	0920D	S15	E53	.796	15521	8.3	68D	2N		C	0827	429	8.2	GV
TEHR	04	0820	0823	0903	S14	E53	.795	15521	8.3	43	1B	2	C		190		U F
WEND	04	0825E		0833D	S14	E51	.774	15521	8.2	8D	1N		V		300	5.0	EG
HERS	04	0900E	0900	0933	S16	E50	.765	15521	8.1	33D	1N		P	0900	113	2.3	U
RAMY	04	1221	1221	1242	N36	W21	.727		2.9	21	SN	3	C		22		
MCMA	04	1250	1254	1316	S32	E08	.452	15509	5.1	26	SN		C	1254	40	.5	E
RAMY	04	1251	1252	1313	S30	E11	.437		5.4	22	SB	3	C		25		
MCMA	04	1340	1345	1415	N37	W22	.742	15522	2.9	35	SF		C	1345	50	.6	E
HOLL	04	1344	1351	1405	N36	W23	.736		2.8	21	SN	3	C		38		
MCMA	04	1355	1405	1420	S32	W02	.436	15509	4.4	25	SF		C	1405	35	.5	E
MCMA	04	1408	1412	1430	N14	W11	.390	15508	3.8	22	SF		C	1412	30	.3	EL
MCMA	04	1436	1450	1515	N16	W13	.433	15508	3.6	39	SN		C	1450	75	.8	EL
RAMY	04	1449	1450	1457	N16	W10	.412		3.9	8	SN	3	C		62		
HOLL	04	1558	1619	1702	N16	W12	.426	15508	3.8	64	1B	3	C		194		F
MCMA	04	1558	1620	1712D	N16	W13	.433	15508	3.7	74D	SB		C	1620	150	1.5	EHU
RAMY	04	1600	1611	1709	N16	W11	.419		3.8	69	SB	3	C		162		Z F
PALE	04	1720	1720	1728	S18	E69	.928		9.9	8	SN	3	C		19		F
PALE	04	1907	1910	1917	S30	E 8	.422		5.4	10	SN	3	C		29		F
PALE	04	1943	2035	2039	N32	E90	1.002		11.6	56	SN	3	C		31		F

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IM-POR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DATE SEP	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	NOAA PLAGE REGION	CMP DAY	MIN.		COORD.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
PALE	04	2038	2043	2051	N37	W26	.761		2.9	13	SN	3	C		37		F
HOLL	04	2039	2042U	2042D	N36	W26	.752		2.9	30	SN	3	C		37		F
PALE	04	2318	0003	0020	S30	E18	.488		6.3	62	SB	3	C		78		F
HOLL	04	2347	2359	0021	S33	E35	.670	15518	7.6	34	1B	3	C		181		U F
HOLL	04	2351	0004	0014	S30	E17	.480		6.3	23	SB	3	C		32		U F
BUCA	05	0720		0729	N16	W05	.388		4.9	9	SF		C	0725	64	.7	D
TEHR	05	0724	0729	0739	N17	W 4	.401		5.0	15	SB	2	C		63		H
RAMY	05	1048	1050	1057	S20	E 1	.238		5.5	9	SB	2	C		57		
RAMY	05	1053	1112	1134D	N35	E85	1.000		11.8	410	SN	3	C		0		
RAMY	05	1225	1234	1246	N35	E85	1.000		11.9	21	SN	4	C		0		
RAMY	05	1336	1342	1346	N35	W38	.615		2.7	10	SN	4	C		19		
RAMY	05	1350	1353	1406	N19	W55	.864		1.5	16	SB	4	C		148		
HOLL	05	1350	1353	1401	N18	W56	.869		1.4	11	SB	2	C		131		F
HOLL	05	1413	1414	1416	S30	W 3	.405		5.4	3	SN	2	C		25		
RAMY	05	1431	1432	1437	N35	W38	.815		2.8	6	SN	4	C		17		
RAMY	05	1451	1452	1459	S22	W 3	.275		5.4	8	SB	4	C		21		
HCMA	05	1525E		1529D	S35	W00	.480	15509	5.6	40	SN		C	1528	40	.5	E
RAMY	05	1538	1541	1543	N35	E83	.999		11.9	5	SN	4	C		0		
RAMY	05	1538	1539	1549	N35	W39	.822		2.7	11	SB	4	C		25		
RAMY	05	1630	1631	1637	N35	E83	.999		11.9	7	SB	4	C		17		
HOLL	05	1635	1635	1645	N36	W36	.810		3.0	10	SN	3	C		19		
RAMY	05	1641	1643	1658	N19	W57	.879		1.4	17	SN	4	C		18		
HOLL	05	1718	1718	1732	N36	W37	.816		2.9	14	SN	3	C		19		
HOLL	05	1724	1724	1728	S30	W 5	.409		5.4	4	SB	3	C		22		
RAMY	05	1724	1724	1734	S30	W 2	.403		5.6	10	SN	4	C		23		
HOLL	05	1752	1758	1803	S21	W 5	.267		5.4	11	SN	3	C		26		
HCMA	05	1850	1852	1900	S35	W04	.484	15509	5.5	10	SF		D	1852	75	1.0	E
HCMA	05	1853	1855	1900	S25	W30	.563	15507	3.5	7	SF		C	1855	30	.4	DH
RAMY	05	1947	2023	2036	S22	W 6	.288		5.4	49	SB	3	C		37		
HCMA	05	2009		2011D	N32	E88	1.000	15525	12.4	20	SF		C	2010			D
RAMY	05	2013	2016	2022	N34	E81	.998		11.9	9	SB	3	C		23		
RAMY	05	2024	2043	2058	S30	W 4	.407		5.6	34	SB	3	C		73		
HCMA	05	2045E		2055D	S34	W07	.477	15509	5.3	100	SN		C	2045	40	.5	E
HCMA	05	2051E		2055D	N32	E88	1.000	15525	12.5	40	SF		C	2051			E
RAMY	05	2105	2106	2110	N34	E80	.997		11.9	5	SB	3	C		18		
RAMY	05	2115	2123	2127	S22	W 6	.288		5.4	12	SN	3	C		24		
PALE	06	0023E	0023U	0031	N33	E78	.994		11.9	80	SN	3	C		29		F
PALE	06	0031E	0036	0038	S21	W11	.311		5.2	70	SN	3	C		29		FDE
PALE	06	0220	0225	0237	S31	W 9	.439		5.4	17	SB	3	C		46		F
PALE	06	0249	0249	0258	S23	W11	.338		5.3	9	SN	3	C		22		DE
RAMY	06	1052	1056	1210D	S23	W15	.375		5.3	780	SB	3	C		90		FDE
RAMY	06	1118	1126	1126D	S30	W11	.435		5.6	100	SB	3	V		63		
TEHR	06	1129E	1132	1134	S30	W11	.435		5.7	50	SB	2	C		64		U
RAMY	06	1218	1219	1226	S20	W42	.681		3.4	8	SN	4	C		22		
HCMA	06	1222	1223	1227	N32	E80	.996	15525	12.5	5	SN		C	1223			D
HCMA	06	1308	1325	1344	N18	W41	.734	15508	3.5	36	SN		C	1325	35	.5	E
HCMA	06	1314	1330	1415	S32	W03	.435	15509	6.3	61	SN		C	1330	150	1.9	EFK
HCMA	06	1314	1316	1415	S32	W03	.435		6.3	61	SN			1316	125	1.6	
RAMY	06	1315	1316	1318D	S32	W13	.475		5.6	30	SB	4	V		102		FDE
TEHR	06	1320E	1323	1330	S31	W11	.450		5.7	100	SB	2	C		127		F
RAMY	06	1325	1325	1331	N18	W40	.724		3.6	6	SN	4	C		28		
HOLL	06	1328	1330	1358	S33	E 3	.451		6.8	30	SN	2	C		32		U
HOLL	06	1338	1349	1426	S23	W15	.375		5.4	48	SB	2	C		35		F
RAMY	06	1347	1348	1410	S23	W16	.386		5.4	23	SB	4	C		19		
HCMA	06	1347	1348	1355	S22	W15	.364	15526	5.4	8	SF		C	1348	20	.3	D
HCMA	06	1448	1453	1500	S22	W16	.374	15526	5.4	12	SN		C	1453	50	.5	E
RAMY	06	1448	1452	1502	S23	W17	.396		5.3	14	SB	4	C		68		FDE
HOLL	06	1449	1452	1501	S23	W16	.386		5.4	12	SB	3	C		54		U F
RAMY	06	1600	1601	1615	S23	W18	.407		5.3	15	SB	4	C		46		
RAMY	06	1617	1618	1621	S32	W15	.488		5.6	4	SN	4	C		27		
HOLL	06	1641	1654	1709	S23	W17	.396		5.4	28	SB	3	C		65		F
RAMY	06	1647	1647	1715	S23	W18	.407		5.3	28	SB	4	C		19		F
HCMA	06	1651E		1731D	S22	W17	.386	15526	5.4	400	SN		C	1655	125	1.6	E
PALE	06	1655E	1703	1710	S23	W19	.418		5.3	150	SN	3	C		76		DE
PALE	06	1759	1759	1806	N16	W36	.670		4.0	7	SN	3	C		25		F
RAMY	06	1759	1800	1811	N16	W38	.692		3.9	12	SB	4	C		34		
HCMA	06	1759	1800	1811	N19	W46	.787	15508	3.3	12	SN		C	1800	40	.6	D
PALE	06	1856	1856	1907	S23	W20	.430		5.3	11	SN	3	C		36		DE
HOLL	06	1921	1940	2008	N35	E67	.967		11.8	47	SB	3	C		98		F
HCMA	06	1921E		1935D	N28	E72	.976	15525	12.2	140	SF		C	1928			D

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OBSERVATORY	OBSERVED UT				LOCATION					DURATION — MIN.	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS
	DATE SEP	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY			COND.	TYPE	TIME — UT	MEAS. AREA Mill. of Dis	CORR. AREA Sq. Deg.	
PALE	06	1934	1935	1939	S31	W18	.498		5.5	5	SB	3	C		40		F
HOLL	06	1935	1935	1937	S32	W15	.488		5.7	2	SN	3	C		46		
RAMY	06	1935	1935	1944	S32	W16	.495		5.6	9	SB	3	C		62		
RAMY	06	1935	1939	1955	N34	E68	.969		11.9	20	SB	3	C		41		
PALE	06	1938	1939	1947	N33	E69	.971		12.0	9	SN	3	C		22		F
RAMY	06	2006	2006	2011	S32	W17	.502		5.6	5	SN	3	C		29		F
RAMY	06	2047	2050	2053	N17	W72	.965		1.5	6	SN	3	C		15		
HOLL	06	2219	2223	2250	S23	W20	.430		5.4	31	SB	3	C		79		FDE
PALE	06	2223E	2223U	2301D	S23	W22	.453		5.3	38D	SB	3	C		89		FDE
HOLL	06	2327	2332	2353	S32	W17	.502		5.7	26	SN	3	C		47		F
HOLL	06	2330	2333	2354	N35	E65	.960		11.9	24	SN	3	C		57		FDE
PALE	06	2330E	2332U	2350D	S31	W20	.514		5.5	20D	SB	3	C		46		FDE
PALE	06	2331E	2341U	2349D	S23	W22	.453		5.3	18D	SN	3	C		29		FDE
HOLL	06	2332	2336	2350	S23	W21	.441		5.4	18	SN	3	C		31		
TEHR	07	0608E	0612	0619	S30	W21	.512		5.7	11D	SB	2	C		95		F
ISTA	07	0700E		0740	S32	W24	.559		5.5	40D	SF						E
ISTA	07	0755E		0805D	N16	W36	.670		4.6	10D	SF						E
ISTA	07	0840E		0855D	S38	W20	.594		5.9	15D	SF						D
RAMY	07	1232	1233	1247	S23	W29	.537		5.3	15	SN	3	C		27		
HOLL	07	1353	1414	1547	N35	E58	.930	15525	11.9	114	1B	2	C		260		U F
RAMY	07	1356E	1359	1422	N33	E57	.919		11.9	26D	SB	3	C		46		
MCMA	07	1403E		1550	N28	E61	.928	15525	12.2	107D	1B		C	1415	110	2.4	E
RAMY	07	1422E	1425U	1508	N33	E57	.919		11.9	46D	SB	3	C		110		
RAMY	07	1427	1427	1430	S32	W26	.577		5.7	3	SN	3	C		26		
MCMA	07	1536	1537	1548	N19	W58	.887	15508	3.3	12	SF		C	1537	30	.6	D
RAMY	07	1537	1538	1546	N15	W50	.809		3.9	9	SN	3	C		20		
MCMA	07	1620E	1632	1650	N32	E63	.946	15525	12.4	30D	SF		C	1632	40	.9	E
RAMY	07	1750	1751	1809	S23	W32	.573		5.3	19	SB	3	C		20		
RAMY	07	1809	1811	1814	N15	W52	.827		3.9	5	SB	3	C		41		
RAMY	07	1828	1830	1836	N33	E55	.909		11.9	8	SN	3	C		25		
RAMY	07	1908	1909	1912	N15	W52	.827		3.9	4	SN	3	C		19		
RAMY	07	1936	1936	1942	S32	W29	.605		5.6	6	SB	3	C		57		
RAMY	07	2026	2028	2042	N16	W42	.734		4.7	16	SB	3	C		36		
MCMA	07	2027	2029	2045D	N21	W46	.797	15508	4.4	18D	SN		C	2029	30	.4	E
RAMY	07	2048	2049	2104	N15	W53	.836		3.9	16	SN	3	C		30		
RAMY	07	2132	2134	2136	S32	W30	.614		5.6	4	SB	3	C		47		
PALE	07	2330E	2332U	2350D	S31	W20	.514		6.5	20D	SB	3	C		46		FDE
MITK	07	2331E	2351	2439	S25	W15	.399	15518	6.9	68D	2F		C	2351	570	7.1	ES
PALE	08	0122E	0123U	0142D	S23	W36	.621		5.4	20D	SB	3	C		103		FDE
MANI	08	0124E	0125	0132	S21	W36	.612		5.4	8D	SN	3	V		100	1.4	F
TEHR	08	0230E	0234U	0307	S31	W37	.675		5.3	37D	SB	1	C		63		
PALE	08	0239E	0243U	0302D	S30	W38	.679		5.3	23D	SB	3	C		76		FDE
TEHR	08	0357	0403	0420	S21	W38	.636		5.3	23	SB	1	C		63		
RAMY	08	1115	1117	1124	S32	W37	.681		5.7	9	SB	3	C		69		
RAMY	08	1152	1152	1202	N33	E46	.856		11.9	10	SB	3	C		23		
RAMY	08	1208	1215	1222	N15	W62	.907		3.9	14	SN	3	C		46		
RAMY	08	1251	1253	1257	S23	W42	.690		5.4	6	SB	3	C		152		DE
MCMA	08	1252	1255	1335D	S23	W44	.712	15526	5.2	43D	1B		C	1255	120	2.0	E
TEHR	08	1253E	1254	1302	S22	W41	.675		5.5	9D	SB	2	C		127		F
RAMY	08	1257	1301	1319	S23	W42	.690		5.4	22	1B	3	C		169		DE
RAMY	08	1320	1325	1347	S23	W42	.690		5.4	27	SB	3	C		38		
RAMY	08	1618	1618	1622	S23	W44	.712		5.4	4	SB	3	C		20		
MCMA	08	1625E	1629	1657	S27	W47	.756	15526	5.2	32D	1N		C	1629	110	2.1	E
MCMA	08	1626	1629	1632	N18	W72	.966	15508	3.3	6	SN		C	1629	25	.8	D
RAMY	08	1628	1629	1641D	S26	W42	.701		5.5	13D	SB	3	C		65		F
RAMY	08	1635	1639	1641D	N15	W64	.920		3.9	6D	SB	3	C		19		
RAMY	08	1639	1639	1641D	N16	W53	.839		4.7	2D	SN	3	C		19		
PALE	08	1739	1740	1744	S22	W46	.731		5.3	5	SB	3	C		35		DE
MCMA	08	1740E		1743D	S23	W49	.765	15526	5.1	3D	SN		P	1742	50	.9	E
MCMA	08	1804E		1810D	N16	W64	.922	15508	4.0	6D	SF		P	1809	30	.7	E
PALE	08	1804	1810	1813	N15	W64	.920		4.0	9	SB	3	C		27		DE
PALE	08	1836	1839	1926	N15	W64	.920		4.0	5D	SB	3	C		39		FDE
MCMA	08	1838E		1900D	N16	W68	.945	15508	3.7	22D	1N		C	1840	130	3.5	E
MITK	08	2338E	2339	2343D	N32	E41	.817		12.1	5D	SF		C	2339			E
HOLL	09	0006	0007	0014	S32	W43	.736		5.8	8	SB	3	C		29		FDE
RAMY	09	1404	1433	1438	N35	W88	1.001		3.0	34	SN	3	C		0		
RAMY	09	1440	1441	1450	N35	W88	1.001		3.0	10	SN	3	C		0		
RAMY	09	1458	1502	1522	N35	W89	1.001		2.9	24	SB	3	C		0		
RAMY	09	1548	1550	1608	N35	W89	1.001		3.0	20	SN	3	C		0		

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IM-POR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DATE SEP	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	NOAA PLAGE REGION	CMP DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
MCMA	09	1716E		1750D	N36	W88	1.001	15522	3.1	34D	SN		C	1746			K
PALE	09	1747	1747	1750	N37	W85	1.000		3.4	3	SN	3	C		9		F
HOLL	09	2355	2355	2359	S33	W56	.849		5.8	4	SN	3	C		12		
PALE	10	0129	0130U	0140	S31	W60	.875		5.6	11	SB	3	C		42		DE
TEHR	10	1150	1153	1207	N33	E21	.699		12.1	17	SB	1	C		159		DE
RAMY	10	1151E	1151U	1221	N33	E20	.693	15525	12.0	30D	1B	3	C		296		DE
HOLL	10	1436	1441	1455	S33	W64	.904		5.8	19	SN	3	C		54		
RAMY	10	1438	1438	1448	S33	W52	.818		6.7	10	SN	3	C		15		
MCMA	10	1438E	1441	1455D	S35	W61	.888	15509	6.0	17D	1N		C	1441	70	2.1	EL
WEND	10	1510E		1520D	N18	E54	.854		14.7	10D	SN		P				E
HOLL	10	1515	1515	1521	N20	E56	.876		14.8	6	SN	3	C		21		
RAMY	10	1542	1544	1549	S23	W69	.928		5.5	7	SB	4	C		12		
MCMA	10	1542	1547	1551D	S23	W78	.972	15526	4.8	9D	SN		P	1547			DH
RAMY	10	1628	1631	1648	S32	W68	.926		5.6	20	SB	4	C		47		F H
HOLL	10	1629	1630	1648	S33	W65	.910		5.8	19	SB	3	C		48		FDE
WEND	10	1630E		1648	S33	W58	.864	15509	6.3	18D	2N		P		500	11.6	AH
MCMA	10	1631E		1638D	S35	W68	.929	15509	5.6	7D	1N		P	1636	60	2.2	EH
RAMY	10	1708	1730	1801D	N19	E54	.857	15530	14.8	53D	1B	3	C		168		
HOLL	10	1722	1734	1802	N20	E54	.860	15530	14.8	40	1B	3	C		169		
PALE	10	1730	1737	1749	N18	E55	.862		14.9	19	SB	3	C		65		FDE
HOLL	10	2154	2155	2204	N20	E52	.845		14.8	10	SN	3	C		53		F
RAMY	11	1110	1114	1145D	N19	E44	.770		14.8	35D	SB	3	C		82		
MCMA	11	1625	1630	1635	N26	E90	1.001	15536	18.4	10	SF		C	1630			D
MCMA	11	1656E	1659	1703D	N17	E43	.750	15530	14.9	7D	SN		C	1659	60	.9	E
MCMA	11	1830	1833	1855D	N10	E45	.741		15.1	25D	SF			1833			
MCMA	11	1830	1841	1855D	N16	E45	.766	15530	15.1	25D	SF		C	1841	40	.6	EK
HOLL	11	1841	1841	1847	N20	E41	.747		14.9	6	SN	2	C		26		
HOLL	11	2248	2305	2331	N20	E38	.718		14.8	43	SN	2	C		74		F H
PALE	11	2249	2308	2332	N18	E39	.716		14.9	43	SB	3	C		60		DE F
RAMY	12	1459	1459	1506	N35	E60	.940		17.1	7	SN	3	C		28		
HOLL	12	2057	2100	2117	N19	E25	.582		14.7	20	SN	3	C		36		
PALE	12	2111E	2111U	2149D	N19	E27	.602		14.9	38D	SN	3	C		36		
PALE	12	2256	2256	2343	N19	E26	.592		14.9	47	SB	3	C		160		F
PALE	13	0306E	0306	0313	N19	E24	.573		14.9	7D	SB	3	C		67		F
ISTA	13	0943		0947	N20	E27	.611		15.4	4	SF						E
PALE	14	0053	0110	0217	N37	E67	.971	15543	19.1	84	1N	3	C		134		DE F
HOLL	14	1506	1541	1625	N38	E59	.944		19.1	79	SB	3	C		106		
HOLL	14	1507	1514	1528	N30	W33	.749		12.2	21	SN	3	C		21		
HOLL	14	1534	1610	1615	N30	W33	.749		12.2	41	SB	3	C		20		
HOLL	14	1617	1643	1702	N18	E 2	.420		14.8	45	SB	3	C		60		
MCMA	15	1128	1151	1225	N33	E50	.882	15543	19.2	57	1N		C	1151	150	2.7	E
MCMA	15	1352	1418	1530D	N34	E50	.887	15543	19.3	98D	SN		C	1418	80	1.4	EK
MCMA	15	1352	1356	1530D	N34	E50	.887		19.3	98D	SN			1356	60	1.1	
MCMA	15	1453	1457	1509	N25	E40	.769	15536	18.6	16	SN		C	1457	40	.5	E
PALE	15	1714	1722	1809	N36	E45	.867		19.1	55	SB	3	C		130		DE F
PALE	15	1824	1922	2009	N36	E47	.878	15543	19.3	105	1B	3	C		172		DE F
HOLL	15	1909	1928	2028	N38	E45	.877		19.2	79	SB	3	C		112		F
HOLL	15	1927	1929	1932	N39	E26	.786		17.8	5	SN	3	C		51		
HOLL	15	2049	2059	2204	N39	E44	.877		19.2	75	SB	3	C		106		F
PALE	15	2057	2057	2159	N36	E43	.856		19.1	62	SB	3	C		146		FDE
HOLL	15	2235	2237	2251	N29	E30	.719		18.2	16	SB	3	C		49		F
HOLL	15	2252	2254	2306	N39	E43	.872		19.2	14	SB	3	C		17		
TEHR	16	0401	0405	0435	N39	E43	.872		19.4	34	SB	2	C		159		U
TEHR	16	1328	1330	1400	N39	E41	.862		19.6	32	SB	2	C		159		FDE
MCMA	16	1334E		1430	N35	E38	.820	15543	19.4	56D	SN		C	1340	60	.9	E
HOLL	16	1355	1402	1417	N39	E35	.831		19.2	22	SB	3	C		42		FDE
MCMA	16	1450	1454	1529D	N28	E27	.689	15536	18.6	39D	SN		C	1454	35	.4	D
MCMA	16	1530	1543	1607	N28	E27	.689	15536	18.7	37	SB		C	1543	70	.9	EV
HOLL	16	1540	1543	1602	N29	E21	.658		18.2	22	SB	3	C		94		F
WEND	16	1546E		1606	N30	E24	.688	15536	18.5	20D	1N		V		400	5.1	AE
MCMA	16	1741	1757	1815	N28	E27	.689	15536	18.8	34	1N		C	1757	160	2.0	EV
HOLL	16	1742	1756	1820	N29	E19	.646	15536	18.2	38	1B	3	C		246		FDE
MCMA	16	1834	1841	1854	N36	E26	.759	15532	18.7	20	SF		C	1841	100	1.4	E
HOLL	16	1835	1837	1854	N39	E14	.739		17.8	19	SB	3	C		50		
HOLL	16	1927	1958	2026	N39	E13	.736	15532	17.8	59	2B	3	C		600		U F

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IM-POR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DATE SEP	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
HOLL	16	1955	1958	2002	N39	E32	.815		19.2	7	SB	3	C		48		Z
MITK	17	0404E	0410	0509D	N35	E27	.755		19.2	65D	SB		C	0410			E
PALE	17	0404E	0408U	0415D	N36	E30	.781		19.4	11D	SB	1	C		140		F
WEND	17	0840E		0920	N37	E26	.768	15543	19.3	40D	2N		P		600	8.6	AF
WEND	17	1256E		1322	N37	E28	.779		19.6	26D	SN		P				D
WEND	17	1256E		1315	N35	E26	.750		19.5	19D	SN		P				Z
TEHR	17	1300	1302	1317	N35	E30	.772		19.8	17	SB	2	C		159		FDE
HOLL	17	1459	1505	1555	N37	E22	.749	15543	19.3	56	1B	3	C		204		Z U
HOLL	17	1508	1509	1517	S24	E22	.456		19.3	9	SN	3	C		21		
WEND	17	1536E		1622	N36	E23	.744	15543	19.4	46D	2N		P		500	6.9	BFIT
MCMA	17	1819E		1850D	N30	E14	.633	15536	18.8	31D	SF		P	1821	30	.4	D
HOLL	17	1949	1954	2008	N37	E20	.740		19.3	19	SN	3	C		92		U F
PALE	17	1955E	1955U	2004D	N36	E21	.734		19.4	9D	SN	3	C		79		FDE
HOLL	17	2025	2030	2056	N37	E20	.740		19.4	31	SB	3	C		120		FDE
HOLL	17	2125	2128	2205	S24	E18	.411		19.2	40	SB	3	C		135		FDE
HOLL	17	2226	2232	2253	S24	E18	.411		19.3	27	SB	3	C		71		DE
HOLL	17	2242	2243	0019	N37	E18	.732		19.3	97	SB	3	C		138		U F
MITK	17	2323	2343	2428D	N35	E20	.719	15543	19.5	65D	1B		C	2343	180	2.2	E
MITK	18	0119E	0133	0212	N36	E18	.721	15543	19.4	53D	1N		C	0133	260	3.2	E
ISTA	18	0703E		0709	S28	E19	.465		19.7	6D	SN						D
ISTA	18	0730E		0738	N36	E17	.717		19.6	8D	SF			0735			D
TEHR	18	0733	0734	0739	N36	E18	.721		19.7	6	SB	1	C		64		
ISTA	18	0923E		0932	S28	E19	.465		19.8	9D	SB						E
TEHR	18	0929E	0931	0937	S24	E19	.422		19.8	8D	SB	2	C		64		
TEHR	18	1001E	1005	1009	N36	E17	.717		19.7	8D	SB	2	C		127		UDE
PALE	18	1932E	1932U	1942	S27	E 5	.352		19.2	10D	SN	3	C		25		DE
PALE	18	2009E	2012	2021	S17	W37	.609		16.1	12D	SN	3	C		58		FDE
HOLL	18	2242	2342	0019	N37	E18	.732		20.3	97	SN	3	C		122		U F
PALE	19	0147	0147	0150	S17	W40	.647		16.1	3	SN	3	C		78		DE
PALE	19	0235	0235	0245	S17	W40	.647		16.1	10	SN	2	C		41		DE
MITK	19	0410		0435	N34	W11	.673		18.3	25	SN		C	0410			E
MANI	19	0412	0414	0418D	N37	W13	.715		18.2	6D	SF	2	V		80	1.0	F
MONT	19	1043	1045	1110D	N36	E02	.682		19.6	27D	SN		C	1045	70		
TEHR	19	1049	1052	1056	N38	E 2	.707		19.6	7	SN	2	C		95		U
MCMA	19	1405E	1412	1430	N28	W07	.583	15536	19.1	25D	SF		C	1412	30	.4	D
MCMA	19	1434	1450	1605	S14	E62	.876	15549	24.3	91	SF		C	1540	50	1.2	EHK
MCMA	19	1608	1611	1613D	S21	E25	.469	15542	21.5	5D	SN		C	1611	20	.3	D
MCMA	19	1649E	1652	1654	N33	W08	.652	15543	19.1	5D	SF		C	1652	25	.3	D
PALE	19	1814	1815	1821	N25	E56	.892		24.0	7	SN	3	C		35		DE
HOLL	19	1934	1941	1957	N37	W 5	.698		19.4	23	SN	3	C		50		FDE
MCMA	19	2020E		2132D	S14	E60	.860	15549	24.3	72D	SN		C	2020	50	1.1	E
MCMA	19	2046E	2055	2132D	N33	W07	.650	15543	19.3	46D	SN		C	2055	120	1.4	E
HOLL	19	2322	2324	2343	S16	W51	.773		16.1	21	SN	3	C		86		F
PALE	19	2323	2324	2341	S18	W52	.786		16.1	18	SN	3	C		63		DE
MITK	20	0613		0622D	N15	E22	.515		21.9	9D	SF		C	0613			E
TEHR	20	1112	1116	1124	S12	E38	.613		23.3	12	SN	2	C		63		
MCMA	20	1352E		1408	N22	E42	.770	15546	23.7	16D	SN		C	1354	30	.4	D
MCMA	20	1522	1523	1530	N22	E41	.761	15546	23.7	8	SN		C	1523	30	.4	E
MCMA	20	1617	1618	1622	N33	W21	.704	15543	19.1	5	SF		C	1618	30	.4	E
MCMA	20	1645	1700	1830D	S13	E45	.703	15549	24.1	105D	SN		C	1700	40	.6	E
MCMA	20	1651	1652	1655	N30	W13	.630	15543	19.7	4	SF		C	1652	25	.3	DH
HOLL	20	2000	2001	2005	N27	E41	.791		23.9	5	SB	3	C		29		FDE
MCMA	20	2003E		2009	N22	E38	.734	15546	23.7	6D	SF		P	2003	30	.4	EL
MCMA	20	2041	2049	2102D	S13	E43	.678	15549	24.1	21D	SN		C	2049	35	.5	E
PALE	20	2054E	2055	2103	S13	E43	.678		24.1	9D	SN	2	C		135		FDE
HOLL	20	2304	2311	2333	N39	W38	.847		18.1	29	SN	3	C		22		
HOLL	20	2315	2318	2354	S 7	E37	.598		23.7	39	SB	3	C		103		FDE
PALE	20	2315	2318	2357	S13	E41	.653		24.0	42	SB	3	C		115		DE F
TEHR	21	0321E	0324	0327	N36	W19	.727		19.7	6D	SB	2	C		95		U
TEHR	21	0416E	0420	0442	N23	E40	.758	15546	24.2	26D	1B	2	C		222		F
PALE	21	1917	1921	1927	N36	W29	.776		19.6	10	SB	3	C		21		DE
PALE	21	2005	2006	2053	N36	W30	.782		19.6	48	SB	3	C		19		DE
PALE	21	2321E	2321U	2326	N14	W 1	.359		21.9	5D	SN	3	C		52		FDE
PALE	21	2324	2325	2329	N36	W31	.788		19.7	5	SB	3	C		41		FDE

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IM-POR-TANCE	OBS.			MEASUREMENTS			REMARKS
	DATE SEP	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY	MIN.		CORD.	TYPE		TIME — UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
MONT	22	0915	0924	0955	N28	E56	.902		26.6	40	SN		C		0924	110		E
TEHR	22	0920	0925	0947	N27	E54	.886		26.4	27	SB	1	V			127		FDE
TEHR	22	1056	1103	1115	N27	E54	.886		26.5	19	SB	1	V			127		FDE
MCMA	22	1139E		1145	N30	E49	.865	15551	26.2	6D	SN		C		1139	30	.5	DH
MCMA	22	1240	1258	1310	N30	E49	.865	15551	26.2	30	SB		C		1258	80	1.3	EH
WEND	22	1253E		1304D	N30	E48	.858		26.1	11D	SN		V					D
MCMA	22	1313	1317	1345D	N29	E49	.860	15551	26.2	32D	SN		C		1317	30	.5	E
MCMA	22	1345		1500D	N29	E49	.860	15551	26.2	75D	SN		C		1400	50	.8	E
MCMA	22	1415	1418	1430	N34	W43	.846	15543	19.4	15	SF		C		1418	50	.8	E
MCMA	22	1430E	1448	1535D	S25	W11	.395	15542	21.8	65D	SF		C		1448	150	1.8	E
MCMA	22	1514	1517	1535D	N29	E48	.853	15551	26.2	21D	SN		C		1517	100	1.6	E
MCMA	22	1630E		1631D	N30	E46	.845	15551	26.1	1D	SF		P		1630	25	.4	D
MCMA	22	1649E	1655	1805D	N38	W55	.928	15532	18.6	76D	SN		C		1655	60	1.2	EW
MCMA	22	1649E	1651	1657D	N27	E47	.837	15551	26.2	8D	SN		C		1651	40	.6	D
MCMA	22	1802E		1805D	N30	E46	.845	15551	26.2	3D	SN		P		1803	70	1.1	E
PALE	22	1948	1948	2000	N27	E49	.852		26.5	12	SN	3	C			73		FDE
PALE	23	0230	0233	0326D	N27	E44	.815		26.4	56D	SB	3	C			141		FDE
TEHR	23	0239E	0243U	0404	N29	E39	.789		26.0	85D	SB	2	C			159		F
TEHR	23	0947	1000	1030D	N35	W50	.892	15543	19.7	43D	2B	2	V			732		U F
MCMA	23	1209E		1544D	N35	W50	.892	15543	19.8	215D	1N		C		1209	250	4.3	BLU
MCMA	23	1401E		1417D	S15	W42	.668	15555	20.4	16D	SN		C		1414	30	.4	E
PALE	24	0210E	0230	0232D	N35	W59	.938	15543	19.7	22D	1B	3	C			173		U F
MANI	24	0403E	0410U	0423D	N25	W00	.532		24.2	15D	SN	3	V			100	1.0	F
MANI	24	0625E	0630	0648D	N35	W60	.942		19.8	23D	SN	3	V			90	1.7	F
MCMA	24	1152E		1200	N34	W68	.971	15543	19.4	8D	SF		C		1154	50	1.4	E
MCMA	24	1204	1206	1215	S14	W64	.892	15544	19.7	11	SF		C		1206	50	1.2	E
MCMA	24	1218	1220	1300	S14	W04	.138	15549	24.2	42	SN		C		1220	80	.9	E
MCMA	24	1242	1252	1322	N34	W70	.977	15543	19.3	40	SF		C		1252	30	.9	E
MCMA	24	1559	1603	1609	S15	W55	.813	15555	20.5	10	SF		C		1603	35	.7	EH
MCMA	24	1603	1604	1607	N38	W56	.933	15543	20.5	4	SN		C		1604	30	.6	D
MCMA	24	1701	1702	1706	S15	W55	.813	15555	20.6	5	SF		C		1702	25	.5	D
MCMA	24	1720	1727	1753D	N25	W07	.542	15546	24.2	33D	1B		C		1727	250	2.7	EU
PALE	24	1755E	1758	1837D	N25	W 9	.549		24.1	42D	SN	3	C			128		U F
PALE	24	2112	2121U	2121D	S22	W43	.695		21.7	9D	SB	3	C			127		FDE
MITK	25	0304E	0306	0330	S23	W45	.720		21.8	26D	SF		C		0306			E
MCMA	25	1807E		1810D	N15	W55	.856	15547	21.6	3D	SF		C		1809	30	.5	E
MCMA	25	2022	2024	2030D	S13	E45	.703	15554	1.2	8D	SN		C		2024	25	.4	E
MONT	26	0726	0727	0737	S15	W80	.980		20.3	11	SF		C		0727	40		D
MONT	26	0737	0743	0804	N14	W59	.885		21.9	27	SN		C		0743	180		
ISTA	26	0740		0756	N15	W58	.880		22.0	16	SN							F
BUCA	26	0740		0815	N15	W60	.895	15547	21.8	35	1N		C		0743	214	4.2	
TEHR	26	0746E	0752	0753D	N14	W58	.877	15547	22.0	7D	1B	2	C			222		F
MONT	26	0933	0936	0958	N20	W16	.521		25.2	25	SN		C		0936	80		
WEND	26	0946E		1015	N20	W17	.529	15560	25.1	29D	1N		V			300	3.4	E
PALE	26	2010	2010	2012	S19	W38	.626		24.0	2	SN	3	C			19		DE
MCMA	26	2015E	2028	2101D	N31	W08	.628	15551	26.2	46D	SN		C		2028	50	.6	EKW
BUCA	27	0725		0836	S20	W80	.979	15542	21.3	71	1F		C		0741	161		
TEHR	27	0743E	0746	0754D	N14	W69	.949		22.1	11D	SB	2	C			127		
ISTA	27	0820		0853	N30	W16	.646		26.1	33	SN				0832			F
MONT	27	0823	0830	0935	N30	W14	.637	15551	26.3	72	1N		C		0830	250		
BUCA	27	0825		0922	N30	W18	.656	15551	26.0	57	1B		C		0841	322	3.7	
TEHR	27	0835E	0839	0903	N30	W17	.651		26.1	28D	SB	2	C			159		F
MCMA	27	1328	1330	1340	S13	E23	.397	15554	1.3	12	SF		C		1330	30	.4	E
MCMA	27	1428	1445	1704D	N27	W20	.633	15551	26.1	156D	2B		C		1445	750	9.1	YFLUV
HERS	27	1456E	1456	1524	S29	W21	.492	15562	26.0	28D	1B		P		1508	161	3.3	U
PALE	27	1700E	1705	1825	N30	W21	.673	15551	26.1	85D	1N	3	C			215		U F
PALE	27	1700E	1727	1825	N30	W21	.673	15551	26.1	85D	2B	3	C			602		U F
MCMA	27	1704	1707	1734D	N30	W20	.667		26.2	30D	1B							
MCMA	27	1704	1727	1734D	N30	W20	.667	15551	26.2	30D	1B		P		1707	170	2.0	EK
PALE	27	1813	1814	1824	N39	E54	.927		3.8	11	SN	3	C			36		UDE
PALE	27	1843	1844	1905	N28	W22	.657		26.1	22	SB	3	C			48		FDE
TEHR	28	0400	0404	0435	N39	E48	.899		3.8	35	SB	2	C			127		F
MCMA	28	1402E		1402D	N29	W39	.790	15551	25.7		SN		P		1402	50	.7	D
MCMA	28	1810	1813	1821	N27	W36	.753	15551	26.1	11	SF		C		1813	40	.5	E
PALE	28	1811	1811U	1824	N30	W32	.746		26.4	13	SN	3	C			21		FDE
PALE	28	1831	1849	1857	N39	E39	.854		3.7	26	SN	3	C			66		FDE

Hα SOLAR FLARES

SEPTEMBER 1978

OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IM-POR-TANCE	OBS		MEASUREMENTS			REMARKS
	DATE SEP	START	MAX. PHASE	END	APPROX. LAT.	APPROX. MER. DIST.	CENTRAL DISTANCE	MCMATH PLAGE REGION	CMP DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR. AREA Sq. Deg.	
HOLL	28	1841	1852	1858	N40	E35	.840		3.4	17	SN	3	C		42		
HCMA	28	1847E		1852D	N36	E37	.823	15557	3.6	5D	SF		P	1847	70	1.0	E
HCMA	28	2052E		2100D	N36	E36	.818	15557	3.6	8D	SF		P	2058	70	1.0	E
HOLL	28	2209	2223	2233	N40	E33	.831		3.4	24	SN	3	C		48		
TEHR	29	0450	0456	0504	N39	E37	.844		4.0	14	SB	2	C		127		
TEHR	29	0950	0954	1005	N29	W38	.782		26.6	15	SB	2	C		159		F U
TEHR	29	1049	1054	1227	S32	E50	.794	15564	5.2	98	1B	2	C		254		F
HCMA	29	1217E		1405	S33	E56	.846	15564	5.7	108D	1N		P	1228	150	3.8	E
HCMA	29	1334	1335	1412	N37	E27	.776	15557	3.6	38	SN		C	1335	80	1.1	EFH
RAMY	29	1336	1337	1355	N38	E30	.800		3.8	19	SB	4	C		75		F
RAMY	29	1341	1342	1347	N28	W44	.821		26.3	6	SN	4	C		23		
HCMA	29	1341	1345	1400	S14	E82	.986	15570	7.7	19	SF		C	1345			E
RAMY	29	1503	1506	1517	N38	E29	.795		3.8	14	SB	3	C		63		F
HOLL	29	1504	1506	1511	N40	E24	.790		3.4	7	SB	3	C		35		
RAMY	29	1656	1704	1807	N38	E28	.790		3.8	71	SB	3	C		40		
RAMY	29	1656	1743	1807	N38	E28	.790		3.8	71	SF	3	C		90		
HOLL	29	1700	1707	1714	N40	E23	.785		3.4	14	SN	3	C		30		
HCMA	29	1715E		1751D	N36	E21	.737	15557	3.3	36D	SN		C	1745	120	1.5	E
HOLL	29	1741	1743	1751	N40	E23	.785		3.5	10	SB	3	C		62		
HOLL	29	1754	1756	1802	N40	E23	.785		3.5	8	SB	3	C		43		H
RAMY	29	2128	2130	2137	N38	E26	.780		3.8	9	SN	2	C		47		
HOLL	29	2128	2130	2136	N40	E21	.778		3.5	8	SN	3	C		43		F
HOLL	29	2201	2205	2235	N40	E21	.778		3.5	34	SB	3	C		156		F
RAMY	30	1503	1507	1510	S17	E67	.913		7.7	7	SN	2	C		39		F
HOLL	30	1519	1520	1523	N17	E70	.958		7.9	4	SF	4	C		14		
RAMY	30	1522	1524U	1526	S10	W90	1.000		23.9	4	SB	3	C		0		
RAMY	30	1714	1716	1730	S38	E64	.907		7.5	16	SF	3	C		0		F S

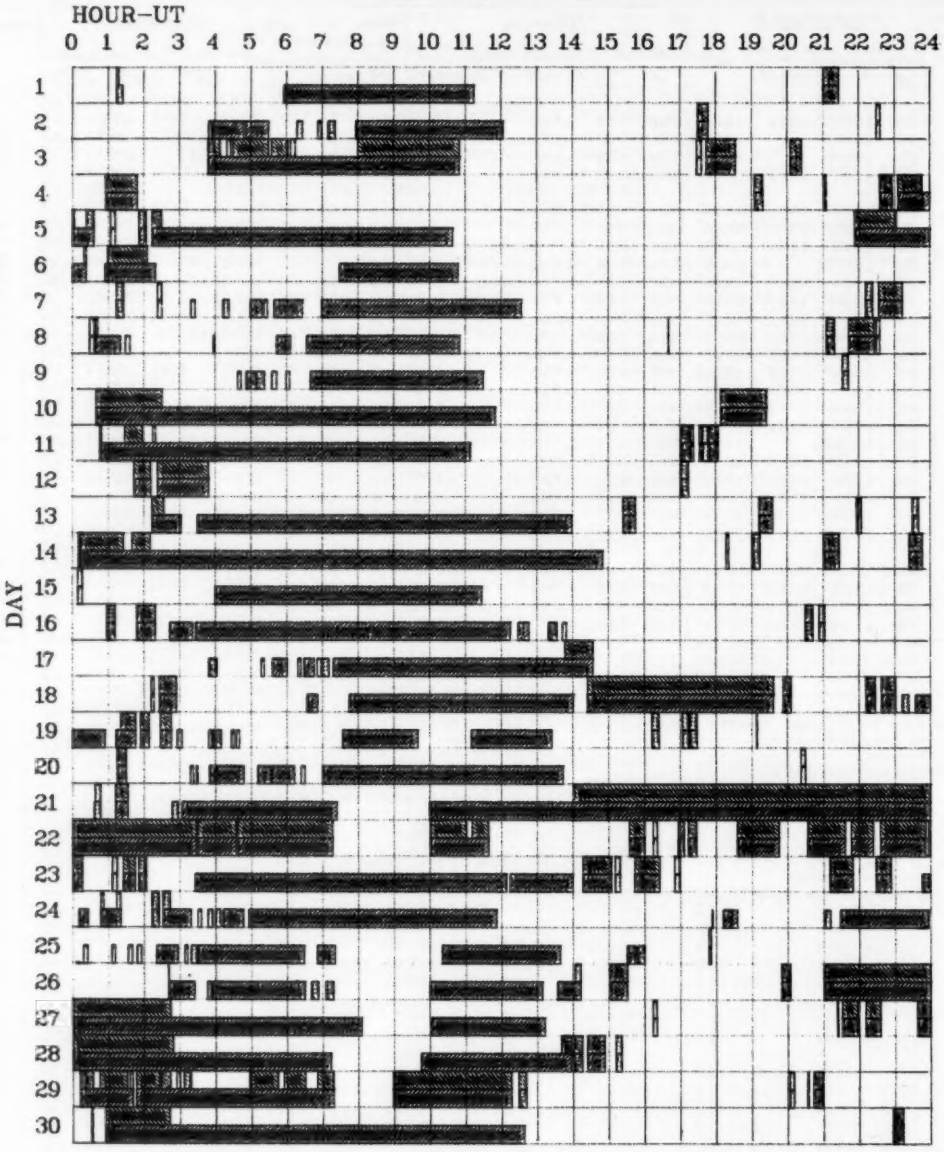
"Remarks":

A = Eruptive prominence whose base is less than 90° from central meridian.
B = Probably the end of a more important flare.
C = Invisible 10 minutes before.
D = Brilliant point.
E = Two or more brilliant points.
F = Several eruptive centers.
G = No visible spots in the neighborhood.
H = Flare accompanied by a high speed dark filament.
I = Active region very extended.
J = Distinct variations of plage intensity before or after the flare.
K = Several intensity maxima.
L = Existing filaments show signs of sudden activity.
M = White-light flare.
N = Continuous spectrum shows effects of polarization.
O = Observations have been made in the calcium II lines H and K.
P = Flare shows helium D_3 in emission.
Q = Flare shows the Balmer continuum in emission.
R = Marked asymmetry in Hα line suggests ejection of high velocity material.
S = Brightness follows disappearance of filament (same position).
T = Region active all day.
U = Two bright branches, parallel (||) or converging (Y).
V = Occurrence of an explosive phase: important and abrupt expansion in about a minute with or without important intensity increase.
W = Great increase in area after time of maximum intensity.
X = Unusually wide Hα line.
Y = System of loop-type prominences.
Z = Major sunspot umbra covered by flare.

INTERVALS OF NO FLARE PATROL OBSERVATION

FOR PRECEDING SOLAR FLARE TABLE

SEPTEMBER 1978



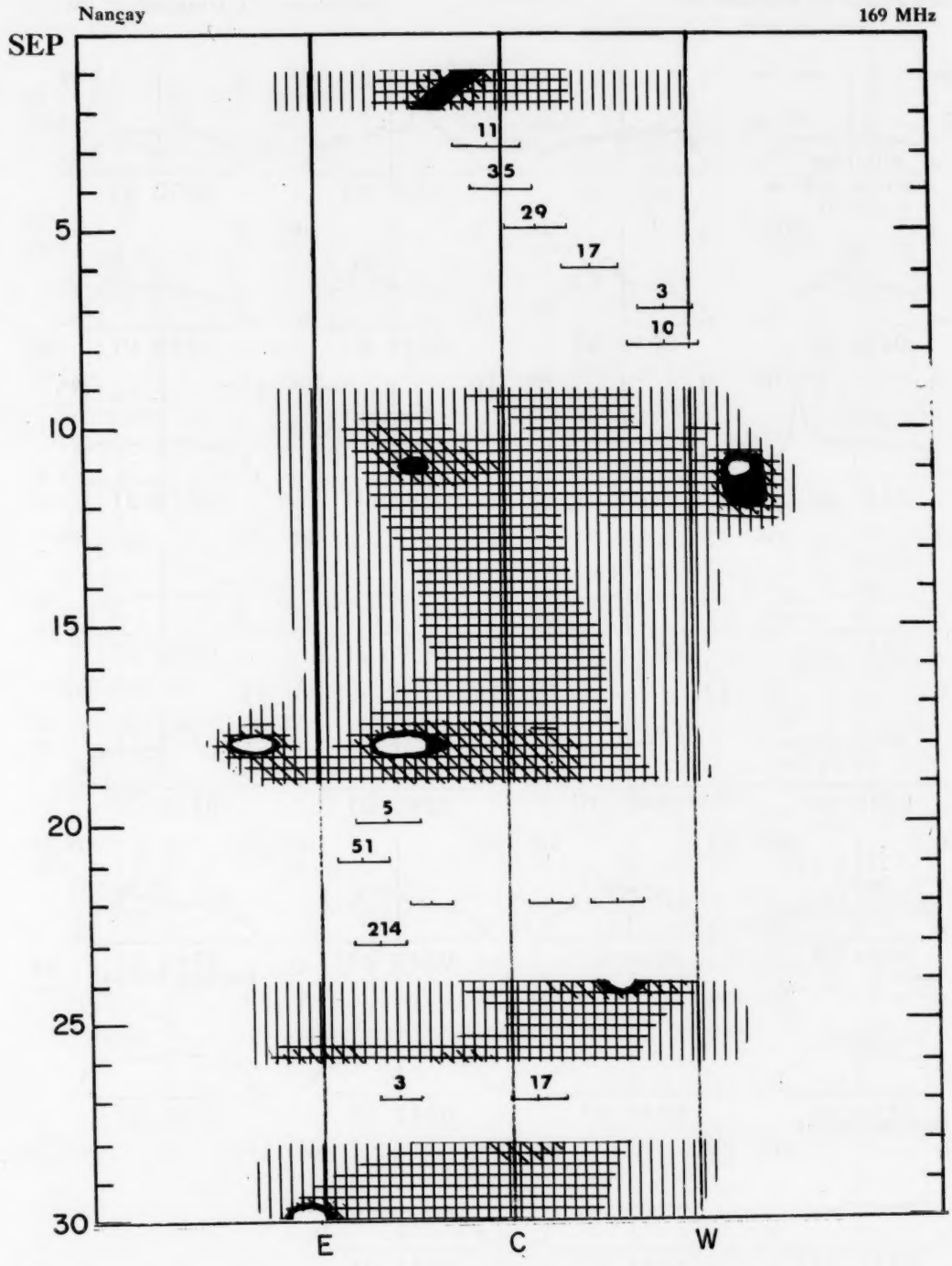
Observatories included in total patrol:

Bucharest	Istanboul	Mitaka	Ramey	Wendelstein
Herstmonceux	Manila	Monte Mario	Tehran	
Holloman	McMath-Hulbert	Palehua	Upice	

Times of no flare patrol are shown by the shaded area for each day, divided into times of no cinematographic patrol (bottom half of day) and times of neither visual nor cinematographic patrol (top half of day).

SOLAR RADIO EMISSION
INTERFEROMETRIC OBSERVATION

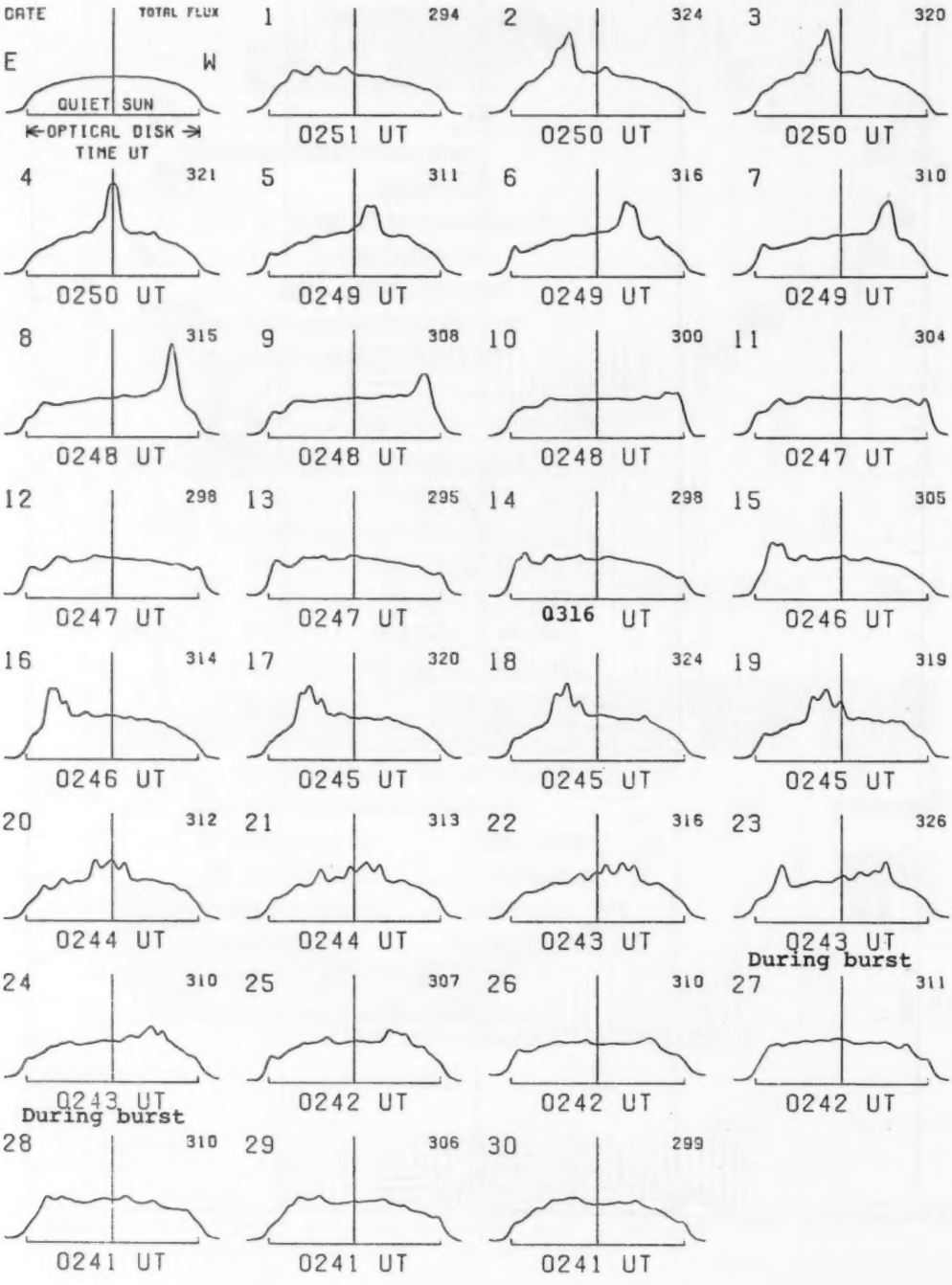
SEPTEMBER 1978



EAST-WEST SOLAR SCANS
SEPTEMBER 1978

TOYOKAWA, JAPAN

3 CM
FAN BEAM WITH 1.1 MINUTES OF ARC

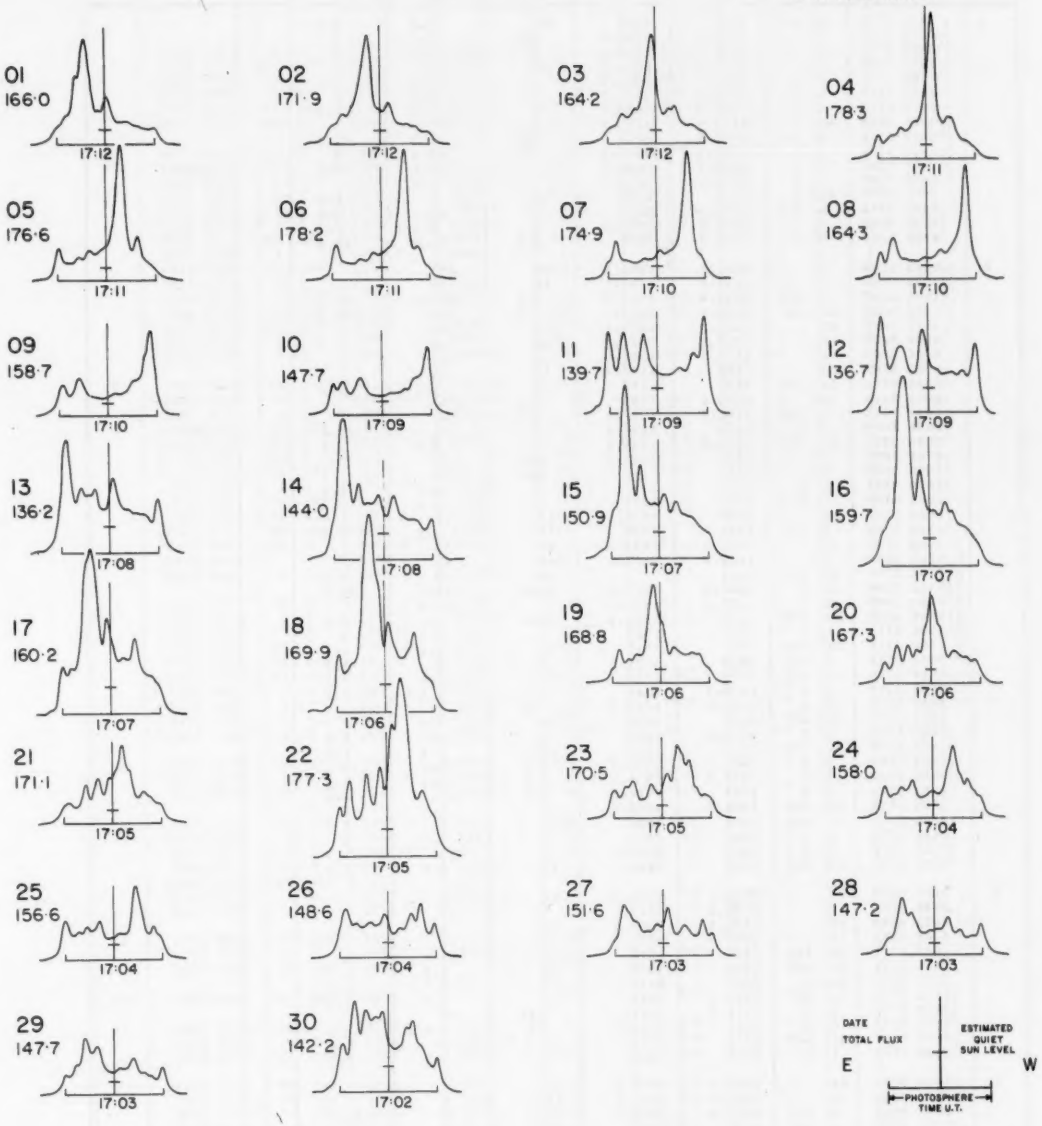


EAST-WEST SOLAR SCANS

SEPTEMBER 1978

ALGONQUIN RADIO OBSERVATORY
CANADA

10·7cm
Fan Beam with 1·5 minutes of arc
E-W Resolution



SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

SEPTEMBER 1978

SEP 1978	FREQUENCY	STATION	TYPE	STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	REMARKS
				UT	UT	MINUTES	PEAK	MEAN		
1	8800	OTTA	23 GRF	1235	1630	505	8.2	4.4		
	2695	SGMR	1 S	1241.6	1242.6	3.1	6.7	2		
	2800	OTTA	2 S/F	1241.8	1242.4	3	6.4	3		
	8900	BERN	3	1309.2	1311.3	66	21			
	2800	OTTA	1 S	1311	1311.3	1	2.6	1.6		
	2800	OTTA	1 S	1429.5	1430.1	1	2.2	1		
	2800	OTTA	1 S	1437.8	1438.2	1	1.8	.9		
	8900	BERN	46	1710.6	1711.5	7	30			
	2800	OTTA	4 S/F	1710.8	1712	5.5	28.8	12.6		
	2800	OTTA	3 S	1835.2	1835.5	1	20.8	7		
	2695	SGMR	3 S	1835.7	1835.8	1.3	14.4	4.3		CONT
	2695	PENT	8 S	2013.7	2013.7	.1E	2.6			
	2800	OTTA	240 R	2145	2202	17	3	1.6		
	2800	OTTA	4 S/F	2222.8	2225	5	12.4	5.6		
	2695	MANI	3 S	2223.5	2225.3	3	8.3	3.2		
	8800	MANI	3 S	2224.3	2225	2.2	41.4	13.8		
2	8900	BERN	4	0541.4	0552.8	75	695			
	8900	BERN	3	0541.4	0542.1	75	34			
	2695	MANI	4 S/F	0549.4	0553.9	9.6	105.4	35.1		
	8800	MANI	47 GB	0550.5	0553.1	16.8	790	263.9		
	8900	BERN	45	0811.4	0835.1	28	13			
	8900	BERN	45	0811.4	0822.1	28	15			
	8900	BERN	8	1050.9	1053.5	6	23			
	8900	BERN	22	1126	1133.7	73	44			
	2800	OTTA	20 GRF	1130	1136	75	6.4	3.2		
	8900	BERN	3	1252.6	1254	2.5	18			
	2800	OTTA	4 S/F	1252.7	1253.5	1.5	60	25		
	2695	SGMR	3 S	1253	1253.8	4	41.5	16.6		CONT
	2800	OTTA	29 PBI	1254.2	1254.2	7	3.2	1.8		
	8900	BERN	3	1307	1308.1	8.5	14			
	8900	BERN	3	1307	1310.2	8.5	15			
	2800	OTTA	1 S	1307	1308	2	2.4	1.2		
	2800	OTTA	1 S	1310	1310	1	4.4	2.2		
	8900	BERN	23	1332	1335.1	12	17			
	2800	OTTA	2 S/F	1334	1335	4	3.8	1.2		
	8900	BERN	45	1420.4	1438.5	65	38			
	8900	BERN	3	1420.4	1423.8	65	50			
	2800	OTTA	21 GRF	1421		20	3	1.5		
	8800	SGMR	45 C	1422.4	1423.6	29.6	78.1	31.2		
	8800	SGMR	45 C	1422.4	1438.5		65.9			
	2695	SGMR	20 GRF	1422.5	1423.8	29.5	6.5	2.4		
	2800	OTTA	1 S	1423	1424	3	8.4	4		
	2800	OTTA	21 GRF	1437	1513	80	3.2	1.6		
	2800	OTTA	2 S/F	1438	1438.5	4	3	1.5		
	2800	OTTA	4 S/F	1450.1	1450.7	1	15.4	7.5		
	2800	OTTA	1 S	1500.8	1501	1	2.4	1.2		
	2800	OTTA	8 S	1528.5	1528.7	.5	2	1		
	2800	OTTA	20 GRF	1635	1650	80	3.2	2		
	2800	OTTA	1 S	1809.2	1810	2	2.4	1.2		
	2800	OTTA	21 GRF	1809	1815	50	3.6	1.8		
	8800	SGMR	3 S	1904.9	1905.8	3.6	58.2	15.1		
	2695	SGMR	3 S	1905.2	1906.4	3.8	19.8	5.9		
	2800	OTTA	3 S	1905	1906.2	3.5	22.2	7.4		
	2800	OTTA	29 PBI	1908.5	1908.5	11	4.4	2		
	2800	OTTA	21 GRF	1930	2021	110	6.4	3		
	2800	OTTA	1 S	2007	2008	2	6.4	3		
	2800	OTTA	3 S	2020	2020.4	1	13	6.5		
	2800	OTTA	20 GRF	2045	2046.7	12	6.4	2.2		
3	8900	BERN	23	0644.1	0650.3	13	11			
	8900	BERN	3	0731.6	0733.6	7	12			
	8900	BERN	20	0831.2	0844.4	40	6			
	8900	BERN	1	0929.5	0930.3	34	10			
	2800	OTTA	26 FAL	1625	1850	145	-10	-4		
	2800	OTTA	20 GRF	1923	1925	14	1.8	1		
	2800	OTTA	240 R	2015	2033	18	3.4	1.7		
	2800	OTTA	21 GRF	2040	2215	175	6.8	3.6		
	2800	OTTA	6 S	2111.7	2111.7	.1E	15			
	2800	OTTA	8 S	2120	2120.5	.9	1.8	.9		
	2695	PENT	21 GRF	2343	2359	72	5	2.8		
	2695	PENT	1 S	2355	2356	2	4.2	2.1		
4	8900	BERN	20	0802.5	0819.6	88	35			
	8900	BERN	20	0802.5	0804.7	88	8			
	2695	MANI	4 S/F	0813.8	0819.3	11.7	80	26.7		
	2800	OTTA	4 S/F	1555	1610	34	92	32		
	2695	SGMR	3 S	1558.9	1608.9	41.1	117	46.8		CONT
	8800	SGMR	20 GRF	1600.1	1609.5	39.9	31.8	12.7		CONT
	2695	BOUL	3 S	1601	1611	47	117	39		
	2800	OTTA	29 PBI	1629	1629	110	11.8	5.9		
	2695	PENT	8 S	2013.5	2013.9	.6	5.6	2.8		
	2800	OTTA	20 GRF	2015	2058	75	5.8	2.6		
5	2800	OTTA	20 GRF	1520	1600	90	2.6	1.3		

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

SEPTEMBER 1978

SEP 1978	FREQUENCY	STATION	TYPE	STARTING TIME	TIME OF MAXIMUM	DURATION	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1}		INT	REMARKS
				UT	UT	MINUTES	PEAK	MEAN		
	2800	OTTA	1 S	1950.5	1951	1	1.8	.9		
	2800	OTTA	22 GRF	2007	2025	55	2.6	1.4		
	2695	PENT	1 S	2127	2129	7	1.6	.8		
	2695	PENT	1 S	2207	2207.2	1.5	1.6	.8		
	2695	PENT	21 GRF	2236	2316	155	9			
	2695	PENT	46F C	2243	2252	11	13.6	6.4		
6	8800	MANI	3 S	0220.2	0221.2	1.8	232.9	77.6		
	8900	BERN	22	0826.5	0840.1	54	19			
	8900	BERN	1	1101	1108.3	17	11			
	8900	BERN	3	1122.1	1124.1	67	50			
	2695	SGMR	3 S	1313.2	1315.5	9.7	12.4	3.7		
	2800	OTTA	3 S	1314.5	1315.2	4	14.8	3.8		
	2800	OTTA	20 GRF	1324	1333	35	2	1		
	8900	BERN	3	1450.8	1451.4	6	15			
	2800	OTTA	22 GRF	1545		90	3	1.5		
	2800	OTTA	3 S	1726	1726.1	1	14	3.6		
	2800	OTTA	2 S/F	1758.8	1759.5	2	4.4			
	2800	OTTA	20 GRF	1909		65	2.6	1.3		
	2800	OTTA	20 GRF	2120	2140	35	2	1		
	2695	PENT	21 GRF	2325	2340	85	7.2	3.6		
	2695	PENT	1 S	2331	2332.5	3	6.4	3.2		
7	8900	BERN	46	0603.4	0604.8	12	34			
	2695	SGMR	1 S	1206.3	1206.6	.5	3.1	.9		S
	2800	OTTA	8 S	1206	1206.4	.7	7.2	3.6		
	2800	OTTA	27 RF	1444		101	2.6	2.3		
	2800	OTTA	24 R	1444	1450	6	2.6	1.3		
	2800	OTTA	24P R	1450		80	2.6			
	2800	OTTA	26 FAL	1610	1625	15	-2.6	-1.3		
	2800	OTTA	1 S	1748.7	1759.3	4	1.8	.9		
	2800	OTTA	20 GRF	1844	1846	12	2.6	1.3		
	2800	OTTA	20 GRF	1910	1935	40	2.2	1.1		
	2800	OTTA	20 GRF	2025	2045	115	4	2		
	2695	BOUL	45 C	2112.5	2114	2	87	29		
	2800	OTTA		2338		25				
	2695	MANI	3 S	2349.7	2352.3	7.9	30.4	10.1		
8	2800	OTTA	3 S	1251.8	1253	6	27	7		
	8800	SGMR	3 S	1252.3	1252.9	2.5	19.6	5.9		
	2695	SGMR	3 S	1252.5	1253.2	4.5	27.6	8.3		
	8900	BERN	20	1252.5	1252.9	12	17			
	2800	OTTA	20 GRF	1620	1625	20	2	1.2		
	2800	OTTA	21 GRF	1810	1900	100	6.8	3.4		
	2800	OTTA	1 S	1824.5	1825	3	7	3.5		
	2695	SGMR	3 S	1835.5	1844.2	29.2	36.4	10.9		3G,SWF
	2800	OTTA	4 S/F	1835	1844	21	33	18		
	8800	SGMR	3 S	1836.9	1841	23.7	33	9.9		3G,SWF
9	2800	OTTA	21 GRF	1455	1645	170	5	2.4		
	2800	OTTA	2 S/F	1551.4	1552.3	2	2.6			
	2800	OTTA	20 GRF	1910	1930	35	1.4	.7		
10	2800	OTTA	21 GRF	1140	1155	80	6.2	3.1		
	2800	OTTA	3 S	1148	1149	4	15.8	7.9		
	2800	OTTA	1 S	1607.7	1608.2	1	1.2	.6		
	2800	OTTA	1 S	1629	1629.5	2	1.4			
	2800	OTTA	21 GRF	1720	1732	30	3	1.5		
	2800	OTTA	1 S	1723	1723.5	1	1.4	.7		
	2800	OTTA	1 S	1758	1800.5	3	1.6	.8		
11	2800	OTTA	20 GRF	1155	1210	65	2.4	1.2		
	2800	OTTA	1 S	1653	1654	2	2.2	1		
	2695	PENT	20 GRF	2250		110	2.6	2		
12	2695	PENT	20 GRF	2255		65	2.6	1.3		
13	2800	OTTA	240 R	1750	1810	20	2.6	1.3		
	2800	OTTA	1 S	1948	1948.3	2	2.8	1.4		
	2800	OTTA	22 GRF	2025	2110	105	3.4	1.7		
14	2800	OTTA	20 GRF	1158	1205	50	2.6	1.8		
	2800	OTTA	20 GRF	1300	1350	150	4.2	2.4		
	2800	OTTA	20 GRF	1600	1805	205	4.2	2.4		
	2800	OTTA	240 R	2100	2120	20	1.8	.9		
	2695	PENT	240 R	2200	2235	35	2.6	1.3		
15	8900	BERN	3	0946.5	0947.6	2	18			
	2800	OTTA	20 GRF	2040	2120	60	4	2.6		
	2695	PENT	240 R	2230	2253	23	5.2	2.6		
16	8900	BERN	4	1325.5	1327.2	65	105			
	8800	SGMR	3 S	1325.7	1327.1	5.2	106	31.8		SWF
	2800	OTTA	4 S/F	1325.8	1326.5	2.7	17.2	10.4		
	2695	SGMR	3 S	1326	1326.7	3.2	17.7	5.3		SWF

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS

SEPTEMBER 1978

SEP 1978	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	REMARKS
	2800	OTTA	29 PBI	1328.5	1328.5	30 D	3			
	2800	OTTA	240FR	1515	1543	28	2.2	.8		
	2800	OTTA	240 R	1605	1608	3	1.2	.6		
	2800	OTTA	1 S	1740	1743	10	3	1.3		
	2800	OTTA	3 S	1754	1754.8	2.5	16.4	9.4		
	2800	OTTA	29 PBI	1756.5	1756.5	19	5.4	2		
	2800	OTTA	20 GRF	1825	1836	33	2.2	1.1		
	2800	OTTA	27A RF	1915		225	2.4	2.1		
	2800	OTTA	24 R	1915	1930	15	2.4	1.2		
	2800	OTTA	24P R	1930		170	2.4			
	2800	OTTA	21 GRF	1950	1958	35	7	3.5		
	2800	OTTA	1 S	1955.5	1956.7	2	9	4.5		
	2695	PENT	26 FAL	2220	2300	40	-2.4	-1		
17	2695	PENT	1 S	0007	0007.5	1	7.8	3.9		
	8900	BERN	4	0825	0827.6	75	208			
	8800	MANI	4 S/F	0826	0827.6	5.1	183.9	61.3		
	2695	MANI	4 S/F	0826.3	0828.3	4.3	64.3	21.4		
	2800	OTTA	22 GRF	1216	1220.5	25	4.8	2		
	8900	BERN	3	1257.5	1259.8	15	38			
	8800	SGMR	3 S	1258.6	1259.8	4.4	37.1	14.8		
	2695	SGMR	1 S	1259.4	1300.3	3.6	7.3	2.9		
	2800	OTTA	1 S.	1259	1300	4	7	4.2		
	2800	OTTA	29 PBI	1303	1303	45	3.6	1.5		
	8900	BERN	46	1458.7	1505.5	19	51			
	8900	BERN	46	1458.7	1500.1	19	104			
	2800	OTTA	45 C	1459.2	1500.5	12.8	19.6	14.6		
	2695	SGMR	3 S	1459.3	1500.6	9.7	20.3	8.1		SWF
	8800	SGMR	3 S	1459.5	1500.1	9.5	94.1	37.6		SWF
	2800	OTTA	29 PBI	1512	1512	110	10.2	5.1		
	2800	OTTA	20 GRF	1800	1840	60	2.4	1.2		
	2800	OTTA	22 GRF	1950	2032	90	5.6	2		
	2800	OTTA	1 S	2125	2127	9	4.6	2.1		
	2800	OTTA	1 S	2228.5	2228.9	1	3.4	1.7		
18	2695	PENT	1 S	0013.5	0014	1	3.4	1.7		
	8900	BERN	3	0733	0733.7	2.5	34			
	2695	MANI	3 S	0925	0926	3.1	63.6	21.2		
	8900	BERN	45	0925.5	0926.8	4	82			
	8900	BERN	1	1128.7	1130.1	3.5	15			
	2800	OTTA	24 R	1245	1330	45	2.4	1.2		
	2800	OTTA	27A RF	1245		305	2.4	2.1		
	2800	OTTA	8 S	1249	1249.2	.8	2.6	1.3		
	8900	BERN	45	1314.3	1314.6	4.5	29			
	2800	OTTA	1 S	1314.5	1314.6	2	6	2		
	2800	OTTA	24P R	1330		235	2.4			
	2800	OTTA	20 GRF	1540	1640	90	2.4	1.2		
	2800	OTTA	26 FAL	1725	1750	25	-2.4	-1.2		
	2800	OTTA	1 S	1930	1931	3	1.6	.8		
	2800	OTTA	20 GRF	2000	2040	120	2.2	1.1		
	2695	PENT	20 GRF	2250		60	2.4			
19	2800	OTTA	20 GRF	1510	1540	50	1.6	.8		
	2800	OTTA	20 GRF	1644	1646	30	4.4	2.2		
	2800	OTTA	20 GRF	1905	1925	70	2			
	2800	OTTA	20 GRF	2045	2105	30	1.8	.9		
20	2800	OTTA	20 GRF	1710	1722	25	2.2	1.1		
	2800	OTTA	20 GRF	1835	1917	60	1.6	1.2		
	2800	OTTA	20 GRF	2018	2035	55	2.2	1.6		
	2695	PENT	240 R	2200	2215	15	2.4	1.2		
	2695	PENT	21 GRF	2300	2330	60	2.4	1.4		
	8800	MANI	3 S	2351.2	2351.6	.7	31.5	10.5		
	2695	MANI	3 S	2351.3	2351.6	1.6	56.6	18.7		
	2695	PENT	3 S	2351	2351.7	5	53	15.6		
21	8800	MANI	3 S	0315.2	0316	2.2	30.1	10		
	2695	MANI	4 S/F	0409.3	0415.2	20.5	317.8	105.9		
	8800	MANI	47 GB	0410.1	0415.3		590			
	8800	MANI	47 GB	0410.1	0413.6	18.8	505	195.9		I
	2800	OTTA	1 S	1328	1329	2	3	2.2		
	2800	OTTA	21 GRF	1420 E	1445	140 D	3			
	2800	OTTA	40 F	1554.2	1554.6	4	20			
	2800	OTTA	1 S	1601	1601.4	1	4.6	1.2		
	2800	OTTA	1 S	1612.7	1613	2	1.8	1.2		
	2800	OTTA	20 GRF	1710	1722	40	2.8	1.4		
22	2800	OTTA	23 GRF	1310	1540	370	9.2	5		
	2800	OTTA	1 S	1514	1516.5	6	4	1.2		
	2800	OTTA	20 GRF	1940	1955	65	2.6	1.3		
	2695	PENT	240 R	2055	2155	60	4.6	2.3		
	2695	PENT	20 GRF	2315	2325	50	2.6	1.3		
23	8900	BERN	46	0932.8	1002.2	276	617			
	2695	SGMR	45 C	1141	1229.7		282			

SOLAR RADIO EMISSION
SELECTED FIXED FREQUENCY EVENTS
SEPTEMBER 1978

SEP 1978	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	REMARKS
	2695	SGMR	45 C	1141	1206.7	76	43.2	113		4
	8800	SGMR	20 GRF	1142.7	1209.3	70.5	20.3	8.1		4
	2800	OTTA	21 GRF	1145 E	1206	385 D	91			
	2800	OTTA		1222	1224.4	3.3	33.4			
	2800	OTTA	45 C	1222	1229.3	15	116	31.9		
	2800	OTTA		1225.3	1226.7	2.1	89.6			
	2800	OTTA		1227.4	1229.3	3.1	116			
	2800	OTTA		1230.5	1232	3	64.8			
	2800	OTTA		1233.5	1234.7	3.5	27			
	2800	OTTA	29 PBI	1237	1237	11	6.6	3.3		
	2800	OTTA	1 S	2129	2130	3	2.2	1.1		
24	2800	OTTA	20 GRF	1215	1223	75	2.8	1.8		
	2800	OTTA	20 GRF	1510	1600	65	1.6	.8		
	2800	OTTA	4 S/F	1719.5	1724.2	10.5	163	67		
	2695	SGMR	3 S	1720	1724.7	14.2	186	55.8		2,4,SWF
	2695	BOUL	3 S	1728.5E	1726	9.5D	180	60		
	8800	SGMR	3 S	1721	1725.2	10.3	78.6	23.6		2,4,SWF
	2695	BOUL	32 ABS	1730	1733 U	5.5D	5	2		
	2800	OTTA	20 GRF	1731.5	1737	140	9	4.5		
	2800	OTTA	21 GRF	2055		175	4.8			
	2800	OTTA	46F C	2106.5	2118.2	37	54.6	20		
	2695	BOUL	20 GRF	2108 E	2119	32.5D	56	19		
25	2800	OTTA	20 GRF	1417	1426	25	3	1.5		
	2800	OTTA	20 GRF	1850	1935	85	2.2	1.4		
26	2695	MANI	3 S	0738.2	0739.3	2.8	25.9	8.5		
	2800	OTTA	20 GRF	1510	1523	55	2.4	1.2		
	2800	OTTA	20 GRF	1827	1835	20	2.4	1.2		
	2800	OTTA	8 S	1913.9	1913.9	.1E	4.8			
	2800	OTTA	21 GRF	2037	2040	30	6	3		
	2800	OTTA	1 S	2052	2053	2	2.4	1		
	2800	OTTA	40 F	2056.4	2056.4	.8	12.6			
	2800	OTTA	21 GRF	2110	2205	170 D	6.4			
	2800	OTTA	1A S	2122	2124	9	9.4	5		
	2800	OTTA	1 S	2125.5	2126.3	1.5	6.6	3		
	2800	OTTA	8 S	2205.5	2205.5	.1E	22.8			
27	8900	BERN	22	0718.5	0724.5	26	30			
	2695	MANI	4 S/F	0827.2	0838.3	6.3	55.7	18.6		
	8900	BERN	46	0828.5	0830	38	41			
	8900	BERN	45	1432	1439.4	59	141			
	2695	SGMR	45 C	1432.3	1439.6	44.7	420	168		4,CONT,SWF
	2800	OTTA		1433.5	1439.5	10	406			
	2800	OTTA	46F C	1433.5	1439.6	46.5	406	85.4		
	8800	SGMR	3 S	1434.2	1439.7	40.8	136	54.4		4,CONT,SWF
	2695	BOUL	28 PRE	1435.5E	1436.5U	2 D	10	3		
	2695	BOUL	45 C	1437.5	1440.5	30.5	446	148		
	2800	OTTA		1443.5	1445	10	200			
	2800	OTTA		1453.5	1459	26.5	145			
	2695	BOUL	30 PBI	1508	1508	10 D	53	18		
	2800	OTTA	29 PBI	1520	1520	280	15.8	7.4		
	2695	SGMR	45 C		1459		180			4,CONT,SWF
28	2800	OTTA	20 GRF	1807	1900	130	2.4	1.4		
	2800	OTTA	20 GRF	2050	2225	195	4.6	2.6		
29	8900	BERN	22	0941.5	0955.5	50	17			
	8900	BERN	22	1042.2	1146.6	160	19			
	2800	OTTA	21 GRF	1140	1203	140 D	9	4.5		
	2800	OTTA	1 S	1334	1335	2	6	2.8		
	2800	OTTA	22 GRF	1645	1730	100	2	1		
	2800	OTTA	26 FAL	1840	1900	20	-3	-1.5		
	2695	PENT	22 GRF	2040	2210	220	3.6	1.6		
30	2800	OTTA	240 R	1433	1503	30	2.4	1.2		
	2800	OTTA	20 GRF	1730	1740	18	1.8	.9		
	2800	OTTA	20 GRF	1753	1820	95	2.4	1.6		
	2695	PENT	20 GRF	2330	2333	20	5.6	2.8		

Observatories:

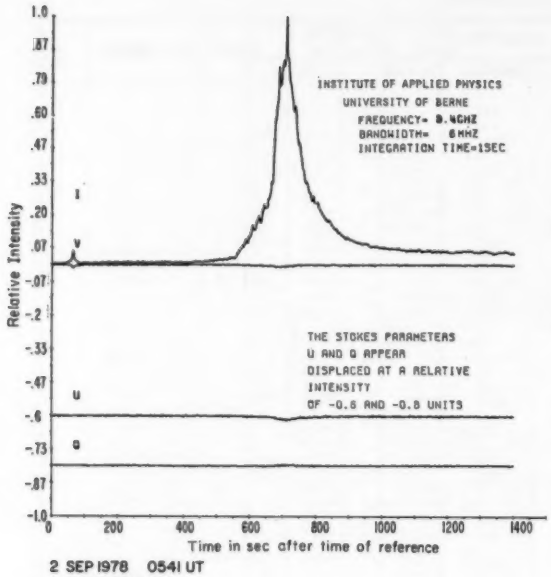
BERN = Berne BOUL = Boulder MANI = Manila OTTA = Ottawa ARO PENT = Penticton SGMR = Sagamore Hill

Explanation of Type Code:

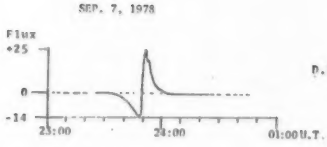
1 Simple 1
2 Simple 1F
3 Simple 2
4 Simple 2F
5 Simple
6 Minor
7 Minor +
8 Spike
20 Simple 3
21 Simple 3A
22 Simple 3F
23 Simple 3AF
24 Rise
25 Rise A
26 Fall
27 Rise and Fall
28 Precursor
29 Post Burst Increase
30 Post Burst Increase A
31 Post Burst Decrease
32 Absorption
40 Fluctuation
41 Group of Bursts
42 Series of Bursts
43 Onset of Noise Storm
44 Noise Storm in Progress
45 Complex
46 Complex F
47 Great Burst
48 Major
49 Major +

SELECTED SOLAR NOISE BURSTS

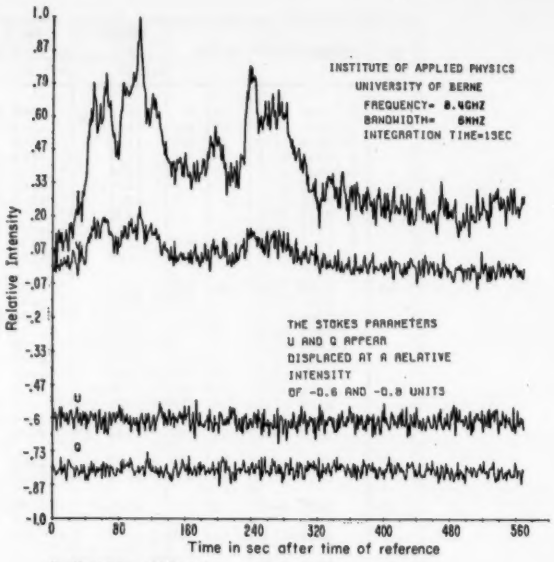
SEPTEMBER 1978



2 SEP 1978 0541 UT
1 UNIT = 739 SFU



7 SEP 1978 2335 UT



7 SEP 1978 0603 UT
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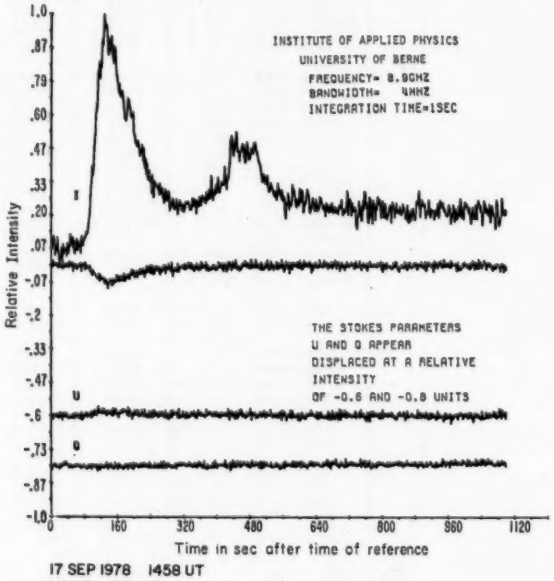
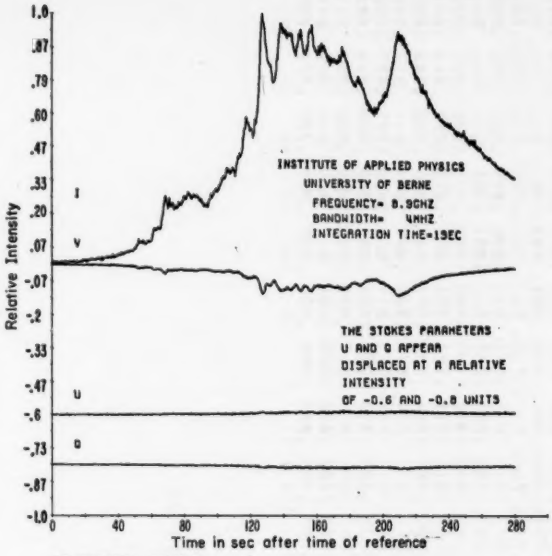


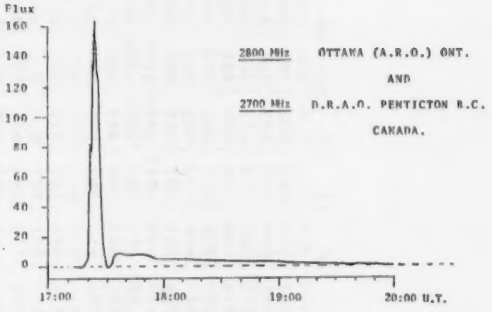
17 SEP 1978 1458 UT
1 UNIT = 104 SFU

SELECTED SOLAR NOISE BURST

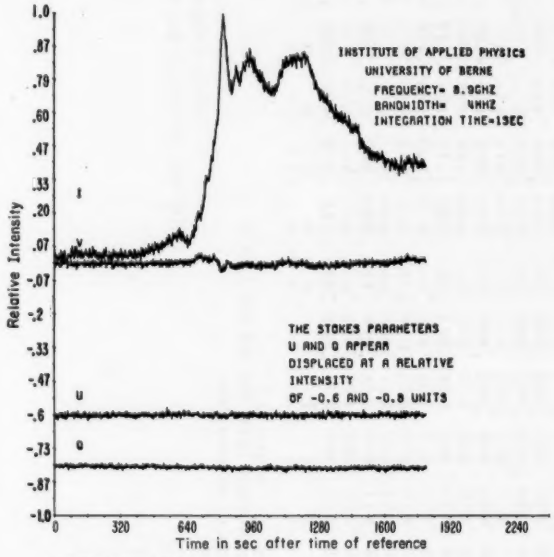
SEPTEMBER 1978



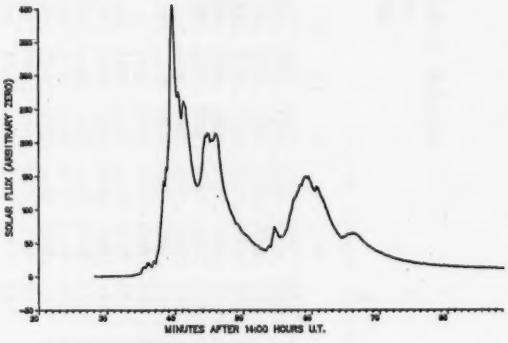
23 SEP 1978 0941 UT
1 UNIT = 608 SFU



24 SEP 1978 1718 UT



27 SEP 1978 1426 UT
1 UNIT = 141 SFU



27 SEP 1978 1433.5 UT

SOLAR X-RAYS BY SATELLITE
SMS GOES
SEPTEMBER 1978

.5 - 4Å Hourly Averages (10^{-5} watts/m^2)

MO	DA	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Mean
9/	1	.002	B	.002	.003	.002	.001	.010	.017	.004	.007	.004	.006	.018	.005	.003	.001	.014	.019	.009	.003	.008	.008	.053	.002	.008
9/	2	.017	.024	.003	.008	.010	.326	.099	.003	.009	.002	.020	.093	.005	.016	.091	.020	.002	.007	.016	.020	.038	.043	.002	.003	.036
9/	3	.005	.016	.007	.009	.002	.016	.004	.004	.008	.014	.002	.003	.004	.003	.003	.003	.019	.004	.014	.031	.010	.003	.005	.007	.008
9/	5	.002	.002	.003	.003	.002	.002	.002	.004	.003	.002	.001	.002	.003	.004	.003	.002	.002	.001	.016	.005	.003	.007	.004	.002	.001	.002	.008
9/	6	.004	.002	.004	.002	.002	.001	.005	.002	.014	.002	.002	.011	B	.006	.002	.002	.003	.002	.002	.003	.002	.003	.001	.003	.006	.003
9/	7	.002	.001	.004	.002	B	.003	.011	.002	.003	.002	B	.002	.004	B	.009	.002	.002	.001	.001	.002	.002	.002	.002	.010	.003	.004
9/	8	.006	.005	.006	.001	.003	.002	.002	.003	.002	.007	.002	B	.011	.008	.002	B	.001	.001	.012	.010	.002	.001	.001	B	.004	.004
9/	9	.002	B	B	B	B	B	.005	B	B	B	.001	B	B	B	B	B	.002	B	B	.001	.001	B	B	B	.001	.001
9/	10	B	.001	B	.002	.001	.005	.001	.002	.001	.001	.004	.007	.001	.001	.001	.001	.002	.003	.002	.001	.001	B	.001	.001	.002
9/	11	.001	B	.001	B	B	.001	B	B	B	B	B	.005	B	.001	B	B	.001	B	.003	B	B	B	.001	.003	.001	.002
9/	12	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	.001	.002	B	.004
9/	13	B	B	B	B	M	B	B	.001	B	.002	.002	.001	.002	B	B	B	B	B	B	B	B	B	.003	.007	.005	.003	.008	.049	.002	.004
9/	14	.002	.002	.001	.002	M	.005	.002	B	.003	.002	.003	.003	.002	.003	.001	B	B	.001	.001	B	B	.001	.001	.001	.002	.004
9/	15	.001	.001	.001	B	M	.006	.004	.002	.001	.014	.005	.003	.003	.003	.004	.002	.002	.002	.002	.012	.002	.006	.003	.002	.004	.005
9/	16	B	B	.001	.001	M	.001	.002	.004	.002	.002	B	B	B	.072	.002	.002	B	.005	.005	.008	.005	B	B	B	.005	.024
9/	17	B	B	B	B	.180	.002	.001	B	.135	.004	.001	B	.002	.010	.001	.188	B	B	B	.005	.017	.003	.014	.013	.024	.024
9/	18	.002	.024	.004	.004	M	.001	.002	.006	B	.004	.005	.003	.002	.003	.003	.001	.002	.013	.001	.001	.001	B	B	B	.004	.004
9/	19	B	B	.002	.001	M	.002	.001	.001	B	B	.001	B	B	.001	.001	B	B	B	B	B	.001	B	.001	.002	.001	.001
9/	20	B	B	B	B	M	B	.001	B	B	B	B	B	B	B	B	B	M	.001	B	.001	.002	.001	.001	.005	.001	.002
9/	21	.001	.001	.001	.007	M	.007	.003	.002	B	B	.001	.001	.001	.001	.003	.002	.001	.002	B	.001	.001	B	B	B	.002	.002
9/	22	B	B	.002	.001	M	.001	B	B	B	.005	.004	.002	.005	.004	.003	.004	.002	.002	.003	.003	.002	.001	.001	.001	.002	.004
9/	23	B	.002	.017	.008	M	.002	.001	.004	.004	.080	1.38	.387	.149	.064	.027	.015	.011	.007	.004	.002	.001	.002	.001	.001	.004	.094
9/	24	.002	.002	.012	.002	M	B	.033	B	B	B	.002	.005	.005	.005	.005	.004	.003	.047	.003	.001	B	.032	.003	.001	.007	.007
9/	25	B	B	.001	B	M	B	B	B	.001	B	B	B	B	B	B	B	B	B	.005	.002	B	B	B	.002	.001	.001
9/	26	.002	.001	B	B	M	B	B	.007	B	B	B	B	B	B	B	B	B	B	B	B	.001	.009	.005	.003	.002	.002
9/	27	.001	B	.001	.001	M	B	.003	.029	.039	.004	.001	B	.002	.005	.134	.102	.013	.052	.004	.003	.002	.002	.001	.001	.017	.017
9/	28	B	.002	.001	B	M	.002	.001	.001	B	B	B	B	B	B	B	B	B	B	.003	.002	.002	.002	.002	B	.001	.001
9/	29	B	B	.001	.001	M	B	B	.003	.001	.009	.010	.066	.014	.003	.002	.002	.002	.003	.001	B	B	B	.002	B	.006	.006
9/	30	B	B	B	B	M	B	B	B	B	B	B	B	B	.001	.003	.003	.003	.004	.004	.002	.002	.002	.002	.002	.001	.001

Note: "B" indicates the flux was below the cut-off levels.
"M" denotes periods of missing data.

SOLAR X-RAYS BY SATELLITE
SMS GOES
SEPTEMBER 1978

1 - 8Å Hourly Averages (10^{-4} watts/m^2)

MO DA	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Mean
9/ 1	.010	.008	.010	.014	.010	.008	.026	.028	.015	.019	.018	.020	-.031	.022	.018	.018	.033	.036	.026	.015	.025	.022	.063	.015	.015
9/ 2	.029	.035	.019	.025	.023	.151	.118	.018	.022	.015	.027	.089	-.022	.029	.091	.047	.017	.021	.029	.036	.051	.059	.014	.013	.039
9/ 3	.017	.029	.021	.020	.011	.027	.014	.014	.021	.024	.013	.012	-.015	.014	.017	.015	.033	.015	.022	.039	.023	.013	.015	.018	.014
9/ 4	.020	.016	.020	.016	.027	.016	.031	.011	.005	.030	.017	.015	-.013	.012	.013	.012	.034	.021	.014	.021	.018	.013	.011	.012	.014
9/ 5	.011	.011	.011	.011	.010	.011	.012	.014	.015	.012	.010	.011	-.013	.016	.015	.017	.016	.013	.013	.011	.014	.011	.014	.023	.008
9/ 6	.019	.012	.014	.024	.012	.011	.018	.015	.025	.014	.013	.018	-.010	.020	.012	.011	.014	.014	.013	.016	.012	.010	.018	.030	.010
9/ 7	.014	.011	.016	.014	.010	.014	.024	.013	.015	.013	.010	.012	-.015	.010	.026	.016	.013	.011	.012	.014	.013	.013	.013	.029	.009
9/ 8	.027	.021	.020	.015	.016	.013	.012	.015	.015	.019	.015	.010	-.017	.024	.014	.010	.011	.010	.025	.033	.012	.010	.010	.010	.010
9/ 9	.012	.009	.009	.009	.007	.008	.013	.008	.007	.009	.010	.009	-.008	.008	.007	.009	.016	.009	.008	.009	.009	.008	.008	.008	.005
9/10	.008	.010	.009	.013	.011	.021	.012	.013	.011	.010	.017	.010	-.012	.010	.011	.011	.012	.013	.012	.010	.010	.009	.010	.010	.007
9/11	.011	.009	.010	.008	.008	.010	.009	.009	.009	.008	.008	.010	-.008	.009	.010	.007	.009	.008	.014	.009	.009	.008	.010	.015	.006
9/12	.009	.007	.007	.006	.006	.006	.006	.006	.006	.007	.007	.007	-.006	.007	.006	.006	.007	.008	.007	.007	.007	.008	.008	.013	.004
9/13	.006	.006	.006	.007	M	.005	.006	.008	.007	.010	.008	.007	-.008	.007	.005	.007	.008	.009	.019	.015	.012	.019	.111	.010	.009
9/14	.010	.010	.009	.013	M	.014	.011	.008	.012	.011	.013	.014	-.012	.014	.009	.008	.013	.009	.009	.007	.006	.009	.010	.010	.006
9/15	.010	.009	.009	.007	M	.011	.012	.011	.009	.021	.017	.013	-.012	.013	.017	.011	.011	.010	.010	.022	.010	.010	.013	.011	.008
9/16	.010	.008	.008	.008	M	.008	.010	.012	.010	.010	.008	.007	-.007	.052	.012	.009	.008	.011	.016	.016	.018	.009	.007	.006	.009
9/17	.007	.007	.006	.007	.290	.009	.008	.006	.005	.019	.009	.008	-.009	.017	.007	.125	.010	.006	.006	.011	.026	.013	.022	.025	.027
9/18	.010	.030	.014	.012	M	.007	.009	.013	.016	.010	.015	.010	-.010	.011	.012	.010	.011	.022	.008	.009	.010	.007	.007	.007	.008
9/19	.007	.008	.010	.009	M	.011	.010	.010	.009	.008	.008	.008	-.007	.007	.008	.007	.007	.007	.007	.007	.008	.008	.008	.010	.005
9/20	.007	.007	.007	.007	M	.006	.009	.007	.007	.007	.007	.007	-.007	.007	.007	.007	M	.008	.008	.009	.009	.008	.010	.017	.004
9/21	.017	.009	.009	.016	M	.013	.012	.010	.008	.008	.008	.008	-.008	.009	.011	.011	.009	.010	.008	.008	.009	.007	.007	.007	.006
9/22	.008	.007	.010	.010	M	.009	.009	.008	.009	.014	.012	.012	-.013	.014	.013	.020	.015	.018	.015	.013	.012	.011	.012	.010	.007
9/23	.010	.013	.034	.030	M	.012	.012	.016	.014	.061	.955	.394	-.204	.112	.070	.048	.037	.030	.023	.019	.017	.016	.014	.013	.094
9/24	.013	.012	.025	.012	M	.011	.042	.010	.010	.010	.013	.017	-.015	.011	.010	.010	.012	.059	.016	.010	.009	.044	.017	.012	.012
9/25	.010	.010	.010	.010	M	.009	.009	.009	.010	.010	.009	.009	-.010	.009	.010	.008	.009	.009	.016	.015	.010	.009	.009	.011	.006
9/26	.014	.012	.009	.009	M	.008	.009	.016	.010	.009	.008	.009	-.008	.008	.008	.008	.008	.008	.008	.009	.010	.021	.021	.014	.006
9/27	.011	.010	.018	.010	M	.009	.012	.044	.054	.021	.012	.009	-.010	.015	.111	.124	.036	.064	.019	.014	.012	.013	.010	.009	.023
9/28	.008	.011	.011	.010	M	.012	.009	.009	.007	.009	.009	.008	-.007	.007	.007	.007	.009	.008	.011	.010	.009	.010	.010	.008	.005
9/29	.007	.007	.009	.008	M	.007	.008	.012	.010	.016	.019	.093	-.043	.020	.012	.010	.011	.015	.010	.008	.008	.007	.010	.007	.010
9/30	.006	.006	.006	.006	M	.005	.006	.006	.007	.007	.007	.008	-.007	.009	.012	.015	.013	.016	.017	.010	.010	.009	.009	.010	.005

Note: "B" indicates the flux was below the cut-off levels.
"M" denotes periods of missing data.

SOLAR X-RAYS BY SATELLITE

GOES

SEPTEMBER 1978

DAY	BEGIN TIME	.5-4A Wm^{-2}	1-8A Wm^{-2}	MAX TIME	.5-4A Wm^{-2}	1-8A Wm^{-2}	1/2P TIME	.5-4A Wm^{-2}	1-8A Wm^{-2}
1	0506	1.6E-10	1.4E-09	0623	4.1E-07	4.9E-06	0642	5.5E-08	2.4E-06
1	0722	3.4E-08	1.5E-06	0738	1.0E-06	9.1E-06	0745	1.7E-07	4.4E-06
1	0833	3.2E-08	1.3E-06	0839	1.6E-07	2.9E-06	0844	5.5E-08	2.1E-06
1	0945	2.6E-08	1.4E-06	0950	5.3E-07	5.2E-06	0956	1.3E-07	3.0E-06
1	1132	2.9E-08	1.5E-06	1140	2.2E-07	3.6E-06	1149	9.3E-08	2.5E-06
1	1213	2.3E-08	1.4E-06	1219	9.6E-08	2.3E-06	1224	2.3E-08	1.9E-06
1	1235	1.9E-08	1.7E-06	1246	1.1E-06	9.4E-06	1253	2.4E-07	4.7E-06
1	1309	3.4E-08	2.1E-06	1312	2.5E-07	3.7E-06	1319	1.0E-07	2.9E-06
1	1627	1.3E-07	3.2E-06	1633	5.3E-07	6.1E-06	1640	1.0E-07	4.5E-06
1	1709	2.7E-08	2.1E-06	1713	1.2E-06	1.0E-05	1719	4.2E-07	5.9E-06
1	1932	6.2E-08	2.1E-06	1939	2.3E-07	3.7E-06	1952	9.3E-08	2.7E-06
1	2222	2.2E-07	3.9E-06	2224	3.1E-06	2.3E-05	2231	1.4E-06	1.3E-05
2	0007	4.5E-08	1.9E-06	0011	2.1E-06	1.2E-05	0014	5.6E-07	6.5E-06
2	0036	1.9E-08	1.7E-06	0045	1.3E-07	3.0E-06	0051	6.2E-08	2.3E-06
2	0113	3.4E-08	1.9E-06	0121	1.3E-06	9.9E-06	0128	2.6E-07	5.1E-06
2	0515	4.2E-08	2.4E-07	0556	2.2E-05	9.4E-05	0602	5.5E-06	4.5E-05
2	0649	7.6E-08	2.7E-06	0654	3.1E-07	5.0E-06	0700	1.3E-07	3.7E-06
2	0812	2.0E-08	1.3E-06	0816	4.7E-07	4.7E-06	0822	1.5E-07	3.0E-06
2	1029	1.4E-08	1.4E-06	1032	1.9E-07	3.1E-06	1035	5.0E-08	2.1E-06
2	1050	1.2E-07	2.9E-06	1055	1.7E-06	9.7E-06	1102	5.0E-07	5.0E-06
2	1127	1.2E-07	2.7E-06	1133	3.1E-06	2.1E-05	1150	7.7E-07	1.1E-05
2	1305	9.2E-08	2.2E-06	1311	1.2E-06	9.4E-06	1315	2.6E-07	5.1E-06
2	1419	2.0E-07	3.4E-06	1439	2.3E-06	1.9E-05	1451	7.2E-07	1.0E-05
2	1812	1.7E-07	2.9E-06	1819	6.2E-07	5.6E-06	1825	2.5E-07	4.0E-06
2	1900	2.5E-08	1.7E-06	1906	9.0E-07	6.5E-06	1915	2.2E-07	4.0E-06
2	2005	1.5E-07	3.3E-06	2012	5.1E-07	5.9E-06	2018	2.9E-07	4.5E-06
2	2044	1.4E-07	3.2E-06	2051	1.3E-06	1.0E-05	2100	4.2E-07	6.4E-06
2	2119	1.5E-07	3.9E-06	2124	1.6E-06	1.2E-05	2135	5.2E-07	7.4E-06
2	2315	2.9E-08	1.3E-06	2318	4.7E-08	1.9E-06	2320	3.6E-08	1.4E-06
3	0307	2.5E-08	1.1E-06	0313	3.4E-07	3.4E-06	0318	9.9E-08	2.2E-06
3	0643	1.4E-08	1.1E-06	0650	2.0E-07	3.0E-06	0655	7.1E-08	2.2E-06
3	0734	2.1E-08	1.1E-06	0916	9.9E-08	2.2E-06	0830	2.9E-08	1.6E-06
3	0929	2.7E-08	1.2E-06	0939	4.0E-07	4.6E-06	0951	1.1E-07	2.9E-06
3	1553	1.4E-08	1.2E-06	1610	7.1E-07	6.5E-06	1621	1.5E-07	3.7E-06
3	1744	3.5E-08	1.3E-06	1750	1.3E-07	2.4E-06	1754	4.5E-08	1.9E-06
3	1834	7.8E-08	1.7E-06	1839	4.3E-07	4.2E-06	1924	1.4E-07	3.0E-06
3	1920	5.6E-08	1.9E-06	1926	1.5E-06	9.1E-06	1935	4.7E-07	5.4E-06
3	2005	3.3E-08	1.9E-06	2017	3.9E-07	4.9E-06	2022	1.3E-07	3.1E-06
3	2219	3.9E-08	1.3E-06	2225	1.4E-07	2.6E-06	2232	5.0E-08	1.9E-06
3	2342	8.2E-08	1.6E-06	0003	2.9E-07	4.4E-06	0010	1.1E-07	3.0E-06
4	0149	3.7E-08	1.5E-06	0155	3.0E-07	3.7E-06	0206	1.1E-07	2.6E-06
4	0301	3.7E-08	1.6E-06	0306	1.3E-07	2.6E-06	0315	4.6E-08	2.1E-06
4	0426	4.7E-08	2.0E-06	0432	1.2E-06	8.7E-06	0439	2.9E-07	1.6E-06
4	0519	1.6E-10	2.3E-07	0529	2.7E-07	2.9E-06	0541	3.3E-08	1.5E-06
4	0554	3.4E-08	1.3E-06	0635	4.5E-07	5.1E-06	0646	1.0E-07	3.0E-06
4	0805	2.8E-08	1.2E-06	0826	1.5E-06	2.0E-05	0842	7.0E-07	1.0E-05
4	1247	1.0E-08	1.0E-06	1255	1.4E-07	2.6E-06	1302	2.7E-08	1.7E-06
4	1447	1.9E-08	1.3E-06	1450	3.2E-08	1.9E-06	1452	3.4E-08	1.5E-06
4	1813	3.4E-08	1.6E-06	1817	1.1E-07	2.4E-06	1820	2.9E-08	1.9E-06
4	1912	5.0E-08	2.0E-06	1917	1.7E-07	3.2E-06	1921	7.3E-08	2.5E-06
4	2004	3.6E-08	1.5E-06	2008	1.5E-07	2.6E-06	2015	4.5E-08	2.0E-06
5	0647	4.2E-08	1.3E-06	0652	1.1E-07	1.9E-06	0654	4.0E-08	1.5E-06
5	0723	1.1E-08	1.1E-06	0732	2.9E-07	3.3E-06	0735	9.6E-08	2.0E-06
5	0813	3.3E-08	1.5E-06	0817	1.2E-07	2.5E-06	0819	4.2E-07	1.0E-06
5	0859	2.1E-08	1.3E-06	0902	1.6E-07	2.9E-06	0904	3.0E-08	1.9E-06
5	1226	1.5E-08	1.1E-06	1231	1.3E-07	2.2E-06	1234	4.0E-08	1.5E-06
5	1311	1.7E-08	1.2E-06	1314	1.3E-07	2.3E-06	1317	2.7E-08	1.6E-06
5	1343	3.3E-08	1.6E-06	1347	1.5E-07	2.2E-06	1355	4.4E-08	2.2E-06
5	**1449**	**2.2E-08**	**1.6E-06**	**1453**	**7.1E-08**	**2.3E-06**	**1458**	**3.0E-08**	**1.9E-06**
5	**1820**	**1.7E-08**	**1.2E-06**	**1823**	**4.7E-08**	**1.9E-06**	**1825**	**3.6E-08**	**1.4E-06**
5	**2243**	**1.4E-08**	**1.2E-06**	**2301**	**1.3E-07**	**2.8E-06**	**2334**	**2.6E-08**	**2.0E-06**
5	**2351**	**2.0E-08**	**1.9E-06**	**2355**	**1.2E-07**	**2.8E-06**	**2359**	**4.4E-08**	**2.3E-06**
6	**0020**	**9.2E-09**	**1.6E-06**	**0024**	**2.2E-07**	**3.5E-06**	**0030**	**7.4E-08**	**2.5E-06**
6	**0054**	**1.6E-08**	**1.3E-06**	**0058**	**6.3E-08**	**2.0E-06**	**0102**	**1.8E-08**	**1.6E-06**
6	**0217**	**2.6E-08**	**1.2E-06**	**0223**	**1.7E-07**	**2.9E-06**	**0229**	**3.9E-08**	**1.9E-06**
6	**0402**	**2.4E-08**	**1.5E-06**	**0405**	**3.2E-08**	**2.1E-06**	**0409**	**2.1E-08**	**1.7E-06**
6	**0824**	**2.6E-08**	**1.6E-06**	**0832**	**9.8E-07**	**8.7E-06**	**0836**	**1.6E-07**	**4.3E-06**
6	**1047**	**1.9E-08**	**1.2E-06**	**1052**	**7.7E-08**	**2.0E-06**	**1100**	**3.4E-08**	**1.5E-06**
6	**1120**	**4.6E-08**	**1.7E-06**	**1123**	**1.6E-06**	**9.3E-06**	**1126**	**1.7E-07**	**3.9E-06**
6	**1932**	**2.6E-08**	**1.5E-06**	**1935**	**9.8E-08**	**2.4E-06**	**1948**	**1.9E-08**	**1.9E-06**
6	**2216**	**1.6E-08**	**1.0E-06**	**2227**	**2.3E-07**	**4.0E-06**	**2234**	**5.5E-08**	**2.4E-06**
6	**2324**	**3.0E-08**	**1.4E-06**	**2340**	**5.8E-07**	**6.6E-06**	**2350**	**1.5E-07**	**3.8E-06**
7	**0209**	**4.5E-08**	**1.4E-06**	**0212**	**4.5E-08**	**2.1E-06**	**0229**	**4.4E-08**	**1.8E-06**
7	**0601**	**1.9E-08**	**1.2E-06**	**0609**	**5.1E-07**	**5.0E-06**	**0617**	**1.2E-07**	**2.9E-06**

SOLAR X-RAYS BY SATELLITE

GOES

SEPTEMBER 1978

DAY	BEGIN TIME	.5-4A Wm^{-2}	1-8A Wm^{-2}	MAX TIME	.5-4A Wm^{-2}	1-8A Wm^{-2}	1/2P TIME	.5-4A Wm^{-2}	1-8A Wm^{-2}
7	1205	2.0E-08	1.3E-06	1211	2.0E-07	3.1E-06	1217	4.2E-08	2.0E-06
7	1358	2.4E-08	1.2E-06	1418	1.8E-07	4.0E-06	1431	7.1E-08	2.6E-06
7	2129	1.9E-08	1.3E-06	2132	3.4E-08	2.1E-06	2134	3.6E-08	1.5E-06
7	2331	2.4E-08	1.4E-06	2354	2.5E-07	5.9E-06	0013	9.6E-08	3.6E-06
8	0118	2.0E-08	1.3E-06	0124	1.6E-07	3.4E-06	0145	4.2E-08	2.3E-06
8	0722	2.6E-08	1.3E-06	0727	7.2E-08	1.9E-06	0748	2.2E-08	1.6E-06
8	0935	2.8E-08	1.3E-06	0943	2.0E-07	3.3E-06	1009	4.7E-08	2.3E-06
8	1249	1.1E-08	9.9E-07	1257	1.0E-06	8.9E-06	1304	2.3E-07	4.4E-06
8	1624	2.0E-08	1.1E-06	1627	3.5E-08	2.1E-06	1638	3.2E-08	1.6E-06
8	1834	3.1E-08	1.3E-06	1858	3.4E-07	6.0E-06	1924	1.0E-07	3.6E-06
9	0003	9.7E-09	9.4E-07	0010	1.0E-07	2.2E-06	0017	3.3E-08	1.5E-06
9	0602	1.7E-08	8.8E-07	0610	2.9E-07	3.1E-06	0615	8.4E-08	1.9E-06
9	0631	1.3E-08	1.0E-06	0636	4.6E-08	1.5E-06	0641	2.6E-08	1.2E-06
9	0914	5.7E-09	7.3E-07	0922	2.1E-08	1.1E-06	0936	8.6E-09	9.5E-07
9	1549	9.8E-09	9.3E-07	1555	5.1E-08	2.2E-06	1637	2.6E-08	1.5E-06
9	2004	9.3E-09	8.0E-07	2007	6.1E-08	1.9E-06	2011	3.7E-08	1.3E-06
10	0124	9.5E-09	9.3E-07	0128	5.3E-08	2.1E-06	0136	2.7E-08	1.5E-06
10	0737	2.2E-08	1.3E-06	0740	3.9E-08	1.9E-06	0753	2.5E-08	1.6E-06
10	1001	2.2E-08	1.1E-06	1018	9.7E-08	2.4E-06	1032	2.4E-08	1.7E-06
10	1142	1.5E-08	1.2E-06	1151	5.5E-07	5.9E-06	1157	1.2E-07	3.4E-06
10	1627	9.8E-09	9.7E-07	1635	8.9E-08	2.0E-06	1639	4.0E-08	1.5E-06
10	1722	1.4E-08	1.0E-06	1731	9.3E-08	2.4E-06	1738	2.0E-08	1.6E-06
10	2025	1.6E-08	1.1E-06	2028	3.3E-06	1.6E-06	2030	1.5E-08	1.1E-06
11	1800	2.4E-08	1.1E-06	1803	4.6E-08	1.8E-06	1818	1.9E-09	1.5E-06
11	2254	3.4E-08	1.4E-06	2257	3.5E-08	2.1E-06	2318	2.8E-08	1.7E-06
12	2248	6.5E-09	7.3E-07	2303	9.1E-08	2.3E-06	2318	2.5E-08	1.5E-06
13	0703	4.7E-09	6.2E-07	0708	6.2E-08	1.4E-06	0714	1.6E-08	9.7E-07
13	1013	4.4E-09	6.8E-07	1022	7.9E-08	2.1E-06	1025	4.5E-08	1.3E-06
13	1638	1.0E-08	7.6E-07	1643	3.4E-08	1.1E-06	1651	1.4E-08	9.4E-07
13	1751	1.3E-08	8.5E-07	1802	3.2E-07	4.4E-06	1812	8.0E-08	2.5E-06
13	1844	2.3E-08	1.0E-06	1847	6.8E-08	1.8E-06	1900	3.8E-08	1.4E-06
13	1946	2.1E-08	1.1E-06	1950	1.8E-07	3.3E-06	1959	5.9E-08	2.1E-06
13	2049	2.4E-08	1.2E-06	2052	4.2E-08	2.1E-06	2055	4.5E-08	1.5E-06
13	2101	3.7E-08	1.4E-06	2108	3.7E-07	4.8E-06	2116	1.3E-07	3.1E-06
13	2207	2.4E-09	7.6E-07	2210	2.7E-09	1.3E-06	2213	6.1E-09	8.0E-07
13	2347	1.9E-08	9.0E-07	2352	4.8E-08	1.3E-06	2357	2.2E-08	1.1E-06
14	0051	2.4E-08	1.2E-06	0057	8.4E-08	2.1E-06	0105	3.5E-08	1.6E-06
14	0319	2.0E-08	1.2E-06	0322	4.6E-08	1.7E-06	0337	2.8E-08	1.4E-06
14	0833	3.4E-08	1.2E-06	0843	6.5E-08	1.8E-06	0853	3.4E-08	1.5E-06
14	1049	2.8E-08	1.4E-06	1052	4.1E-08	2.2E-06	1055	3.8E-08	1.5E-06
14	1301	3.6E-08	1.3E-06	1304	5.2E-08	2.0E-06	1324	2.5E-08	1.6E-06
14	2132	1.1E-08	8.2E-07	2137	4.2E-08	1.3E-06	2147	1.6E-08	1.0E-06
15	0542	9.3E-09	7.8E-07	0551	2.2E-07	2.2E-06	0558	5.6E-08	1.5E-06
15	0942	2.9E-08	1.3E-06	0951	9.1E-07	6.8E-06	0959	2.4E-07	3.8E-06
15	1819	9.0E-09	8.3E-07	1822	8.3E-08	1.7E-06	1826	2.8E-08	1.1E-06
15	1909	2.4E-08	1.1E-06	1924	4.3E-07	4.5E-06	1935	1.2E-07	2.8E-06
15	2056	6.8E-08	1.6E-06	2104	1.4E-07	2.7E-06	2122	4.5E-08	2.1E-06
16	0529	3.4E-09	3.8E-07	0743	2.4E-07	2.6E-06	0750	5.8E-08	1.4E-06
16	1324	1.2E-08	8.1E-07	1329	5.5E-06	2.4E-05	1332	2.3E-06	1.1E-05
16	1539	1.1E-08	8.0E-07	1543	7.1E-08	1.8E-06	1550	3.1E-08	1.3E-06
16	1740	1.3E-08	8.1E-07	1745	6.4E-08	1.9E-06	1748	3.7E-08	1.2E-06
16	1752	2.2E-08	1.0E-06	1758	5.2E-07	5.6E-06	1806	1.1E-07	3.1E-06
16	1950	5.5E-08	1.6E-06	1959	9.3E-07	9.4E-06	2003	1.7E-07	5.1E-06
17	0406	1.0E-06	6.3E-06	0411	2.0E-06	1.0E-05	0418	1.2E-06	8.4E-06
17	0823	1.0E-08	7.0E-07	0830	1.0E-05	4.3E-05	0834	3.6E-06	2.1E-05
17	1219	2.3E-08	9.2E-07	1225	5.8E-08	1.3E-06	1235	2.5E-08	1.1E-06
17	1257	9.0E-09	7.7E-07	1303	5.8E-07	3.8E-06	1312	1.1E-07	2.2E-06
17	1323	3.3E-08	1.3E-06	1327	1.4E-07	2.2E-06	1331	4.5E-08	1.6E-06
17	1456	5.3E-09	6.2E-07	1506	1.1E-05	4.6E-05	1511	4.2E-06	2.1E-05
17	1906	2.2E-08	8.5E-07	1911	7.9E-08	1.5E-06	1916	2.7E-08	1.1E-06
17	1947	1.9E-08	8.3E-07	1954	3.6E-07	3.4E-06	2002	7.5E-08	2.0E-06
17	2023	3.7E-08	1.2E-06	2033	7.9E-07	6.1E-06	2043	1.5E-07	3.6E-06
17	2227	3.0E-08	1.1E-06	2230	5.7E-08	2.1E-06	2232	3.7E-08	1.3E-06
17	2240	2.9E-08	1.1E-06	2246	6.7E-07	6.5E-06	2254	1.9E-07	3.7E-06
17	2336	2.1E-08	1.1E-06	2346	4.4E-07	4.3E-06	2354	1.0E-07	2.6E-06
18	0115	1.1E-08	7.0E-07	0140	7.7E-07	7.5E-06	0146	2.1E-07	4.0E-06
18	0115	1.1E-08	7.0E-07	0140	7.7E-07	7.5E-06	0146	2.1E-07	4.0E-06
18	0302	2.9E-08	1.3E-06	0306	3.5E-07	4.3E-06	0308	9.4E-08	2.2E-06
18	0407	7.2E-09	7.6E-07	0410	3.9E-08	1.1E-06	0419	2.0E-08	9.1E-07
18	1424	2.1E-08	1.1E-06	1427	7.2E-08	1.9E-06	1434	4.4E-08	1.5E-06
18	1845	8.7E-09	7.8E-07	1849	3.3E-08	1.3E-06	1851	1.2E-08	9.2E-07
19	0357	2.8E-08	1.2E-06	0411	5.7E-08	2.2E-06	0419	2.7E-08	1.3E-06
19	1042	9.2E-09	7.8E-07	1047	4.3E-08	1.1E-06	1059	1.7E-08	9.7E-07
19	1120	6.1E-09	7.0E-07	1123	2.9E-08	1.0E-06	1127	1.0E-08	8.5E-07

SOLAR X-RAYS BY SATELLITE

GOES

SEPTEMBER 1978

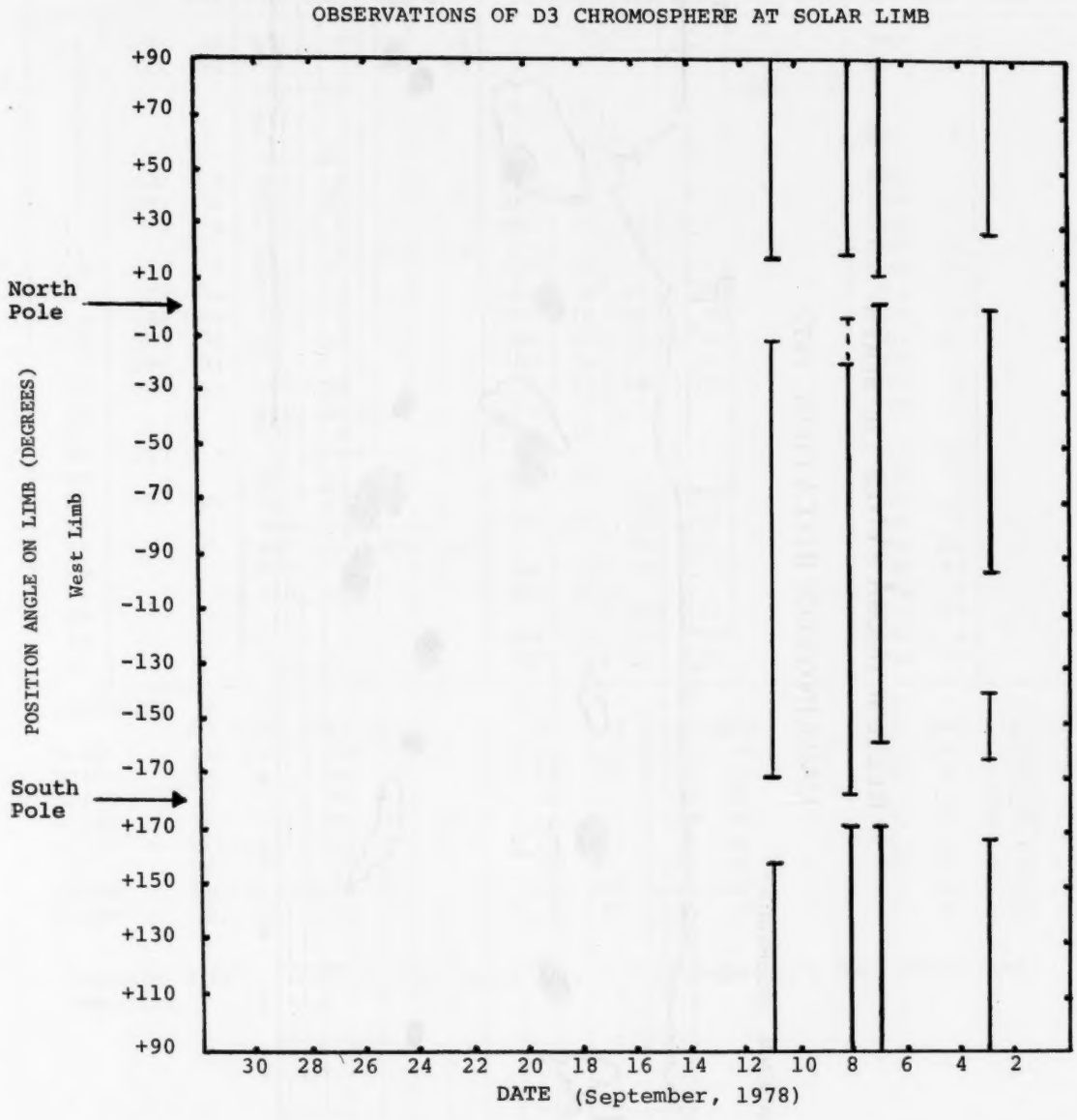
DAY	BEGIN TIME	.5-4A Wm^{-2}	1-8A Wm^{-2}	MAX TIME	.5-4A Wm^{-2}	1-8A Wm^{-2}	1/2P TIME	.5-4A Wm^{-2}	1-8A Wm^{-2}
19	1300	7.2E-09	6.4E-07	1303	4.8E-08	1.0E-06	1310	1.4E-08	8.3E-07
19	2045	1.2E-08	7.3E-07	2053	3.7E-08	1.2E-06	2111	1.2E-08	9.5E-07
19	2226	7.0E-09	6.9E-07	2229	2.6E-08	1.0E-06	2234	9.3E-09	8.4E-07
19	2239	1.0E-08	8.7E-07	2242	3.8E-08	1.2E-06	2244	1.8E-08	1.0E-06
19	2320	1.2E-08	8.2E-07	2324	7.8E-08	2.1E-06	2327	5.1E-08	1.4E-06
20	0336	4.7E-09	6.5E-07	0339	2.9E-08	1.0E-06	0341	1.1E-08	8.3E-07
20	1346	6.4E-09	6.7E-07	1349	7.0E-08	1.2E-06	1352	2.0E-08	9.4E-07
20	1520	6.4E-09	6.9E-07	1523	3.5E-08	1.0E-06	1526	1.3E-08	8.5E-07
20	2312	2.6E-08	1.3E-06	2323	1.5E-07	3.0E-06	2333	4.1E-08	2.0E-06
21	0312	1.6E-08	9.6E-07	0318	3.9E-07	4.5E-06	0323	9.9E-08	2.4E-06
21	1551	9.0E-09	8.7E-07	1556	1.8E-07	2.9E-06	1559	5.2E-08	1.7E-06
21	1700	9.3E-09	8.4E-07	1704	3.8E-08	1.3E-06	1707	1.6E-08	1.0E-06
21	2027	7.5E-09	7.8E-07	2033	5.0E-09	1.4E-06	2036	2.1E-08	1.1E-06
21	2056	8.3E-09	7.8E-07	2059	3.5E-08	1.2E-06	2101	1.4E-08	9.9E-07
22	0150	6.2E-09	7.0E-07	0153	6.3E-08	1.3E-06	0155	2.1E-08	9.9E-07
22	0205	1.4E-08	8.3E-07	0208	7.7E-08	1.9E-06	0210	3.3E-08	1.2E-06
22	0914	1.9E-08	9.6E-07	0924	1.6E-07	2.7E-06	0932	4.4E-08	1.8E-06
22	1049	1.6E-08	1.0E-06	1055	2.1E-07	3.5E-06	1101	5.9E-08	2.1E-06
22	1227	1.1E-08	1.2E-06	1230	2.3E-08	1.9E-06	1233	2.8E-08	1.3E-06
22	1253	1.2E-08	1.0E-06	1259	1.0E-06	6.8E-06	1302	5.8E-08	2.4E-06
22	1514	3.8E-08	1.8E-06	1519	1.4E-07	2.8E-06	1525	5.7E-08	2.3E-06
22	1944	2.1E-08	1.1E-06	1954	1.2E-07	2.5E-06	2003	2.1E-08	1.8E-06
23	0206	2.8E-08	1.4E-06	0248	2.7E-07	5.5E-06	0316	1.0E-07	3.4E-06
23	0528	4.7E-09	6.1E-07	0703	4.3E-08	2.2E-06	0756	2.4E-08	1.4E-06
23	0804	3.2E-08	1.4E-06	0809	1.4E-07	2.4E-06	0814	4.3E-08	1.9E-06
23	0906	2.4E-08	1.3E-06	0910	1.3E-07	2.3E-06	0915	4.1E-08	1.8E-06
23	0941	1.2E-07	2.5E-06	1021	2.0E-05	1.3E-04	1054	7.0E-06	6.6E-05
24	0206	1.2E-08	1.2E-06	0219	3.4E-07	4.3E-06	0239	8.1E-08	2.6E-06
24	0613	4.7E-09	1.1E-06	0616	4.4E-08	2.0E-06	0619	3.2E-08	1.5E-06
24	0620	3.8E-08	1.5E-06	0635	9.9E-07	9.6E-06	0645	2.6E-07	5.2E-06
24	1028	2.1E-08	1.2E-06	1031	2.5E-08	1.9E-06	1033	3.0E-08	1.3E-06
24	1139	4.8E-08	1.5E-06	1145	1.8E-07	2.8E-06	1149	7.5E-08	2.2E-06
24	1240	3.7E-08	1.1E-06	1243	5.4E-08	1.9E-06	1253	5.8E-08	1.5E-06
24	1558	4.4E-08	1.2E-06	1601	4.6E-08	1.8E-06	1603	4.7E-08	1.2E-06
24	1718	1.7E-08	1.1E-06	1726	2.2E-06	1.9E-05	1737	7.5E-07	1.8E-05
24	2131	2.5E-08	1.1E-06	2124	8.2E-07	8.1E-06	2139	2.0E-07	4.5E-06
25	1831	2.4E-08	1.2E-06	1848	1.4E-07	2.5E-06	1906	2.1E-08	1.9E-06
25	1928	1.9E-08	1.3E-06	1933	6.0E-08	2.1E-06	1937	1.9E-08	1.6E-06
26	0007	4.7E-09	1.4E-06	0010	6.4E-09	2.2E-06	0014	1.8E-10	1.4E-06
26	0737	6.5E-09	9.5E-07	0744	5.3E-07	5.5E-06	0749	1.1E-07	3.1E-06
26	2120	2.8E-08	1.2E-06	2143	1.5E-07	3.1E-06	2229	5.3E-08	2.1E-06
27	0631	6.5E-09	8.7E-07	0734	6.9E-07	8.3E-06	0752	2.1E-07	4.5E-06
27	0825	1.3E-07	3.2E-06	0835	1.4E-06	1.1E-05	0843	4.2E-07	7.1E-06
27	1432	4.6E-08	1.8E-06	1450	4.0E-06	3.1E-05	1517	1.3E-06	1.6E-05
28	0356	3.7E-08	1.4E-06	0359	3.9E-08	2.1E-06	0409	2.9E-08	1.8E-06
28	1008	5.9E-09	8.8E-07	1012	3.4E-08	1.3E-06	1017	1.4E-08	1.1E-06
28	0633	6.7E-09	7.1E-07	0637	3.9E-08	1.2E-06	0639	1.6E-08	9.4E-07
28	0942	1.0E-08	9.2E-07	0954	8.1E-07	6.7E-06	0959	1.7E-07	3.6E-06
29	1043	3.1E-08	1.2E-06	1126	7.7E-07	1.0E-05	1205	2.3E-07	5.9E-06
29	1503	2.9E-08	1.2E-06	1506	5.2E-08	2.0E-06	1508	4.2E-08	1.4E-06
29	1702	2.6E-08	1.3E-06	1705	4.4E-08	2.2E-06	1709	4.0E-08	1.7E-06
29	2200	6.5E-09	7.0E-07	2205	6.7E-08	2.1E-06	2212	5.2E-08	1.3E-06
30	2330	1.2E-08	8.3E-07	2336	7.3E-08	2.0E-06	2343	4.0E-08	1.4E-06

CORONAL HOLES

Helium D3 Chromosphere at Solar Limb

SEPTEMBER 1978

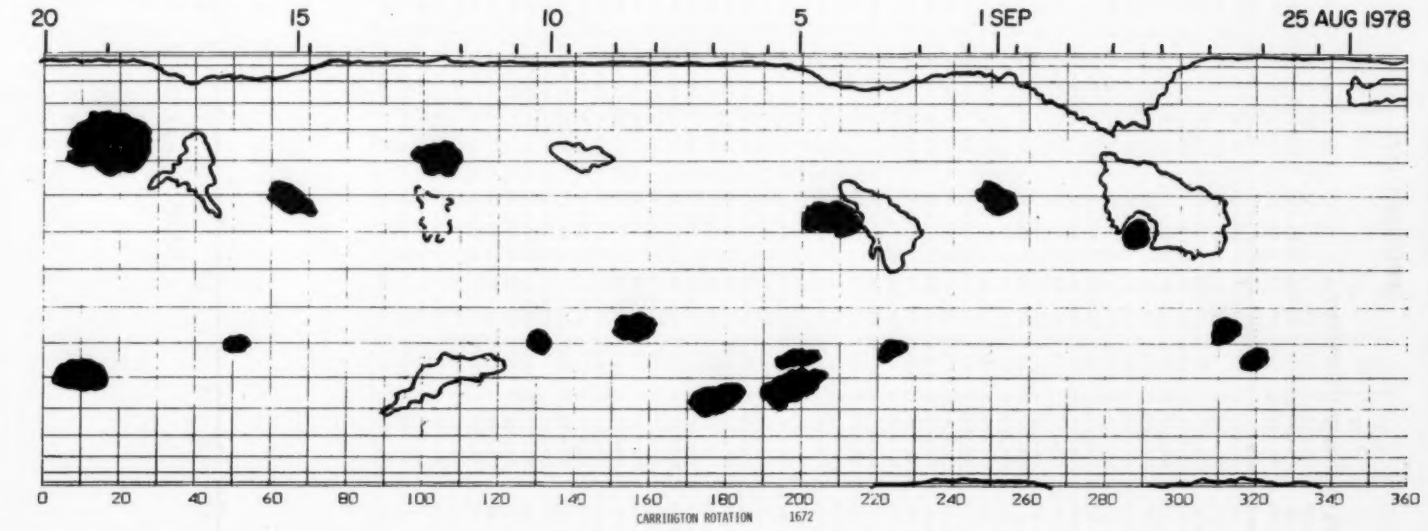
Big Bear Solar Observatory



HELIUM 10830Å SYNOPTIC MAPS

CARRINGTON ROTATION 1672

KITT PEAK NATIONAL OBSERVATORY



SOLAR WIND

Interplanetary Scintillations

SEPTEMBER 1978

DAY	3C48 VEL	3C48 ERR	3C144 VEL	3C144 ERR	3C147 VEL	3C147 ERR	3C161 VEL	3C161 ERR	3C237 VEL	3C237 ERR	3C273 VEL	3C273 ERR	3C298 VEL	3C298 ERR	3C459 VEL	3C459 ERR
1	399	32	351	7	385	15							353	8		
2	471	38			438	55							409	13		
3			565	57							303	7				
5			309	8			380	12								
6													345	9		
7			386	22			301	59								
8	332	*	304	8			261	6					335	9		
9	402	4	317	20			343	38					353	4		
10	526	6	418	9			383	6	545	165			346	6		
11			431	6	424	44	391	4					389	35		
12	437	5	401	7			377	15					386	5		
13	279	36	332	7			383	5	271	23			371	10		
14	438	46	335	8			390	15	299	9			337	4		
15	385	59	311	16			348	10	287	6			361	23		
17	294	31					405	18	387	17			320	5		
18	326	12	383	89			292	13	542	73			295	4		
19			263	20			376	9					379	6		
20			282	8			300	14								
21	317	*											319	30		
22			281	12			311	12					376	5		
23	393	29	351	67					332	29			493	8		
24			344	22			402	33	325	49			680	9		
25			487	27	437	32			437	51			540	21		
26			450	9			406	8	421	7			535	15		
27			319	56			389	21					592	7		
28									525	17			720	14		
29							659	214	522	15			489	6		
30			516	33			342	30	577	32			380	12		

SEPTEMBER 5	UT	LAT	DIST	DLON	15 UT	LAT	DIST	DLON	25 UT	LAT	DIST	DLON
3C48	11.	12.	1.20	11.	10.	12.	1.23	9.	10.	11.	1.25	7.
3C144	15.	6.	0.99	17.	14.	6.	1.04	17.	14.	5.	1.09	16.
3C147	14.	14.	0.98	16.	13.	14.	1.03	16.	13.	13.	1.07	15.
3C161	16.	-3.	0.93	18.	16.	-1.	0.98	15.	15.	-2.	1.02	14.
3C237	20.	-14.	0.22	75.	19.	-7.	0.38	66.	18.	-4.	0.53	57.
3C273	22.	13.	0.39	-68.	21.	22.	0.24	-78.	20.	59.	0.10	-90.
3C298	24.	21.	0.76	-39.	23.	27.	0.66	-47.	22.	36.	0.54	-54.
3C459	8.	9.	1.30	2.	8.	9.	1.30	-0.	7.	8.	1.29	-3.

*Indicates data for which no error estimate is available since only two antennas were operating.

INFERRED IP MAGNETIC FIELD

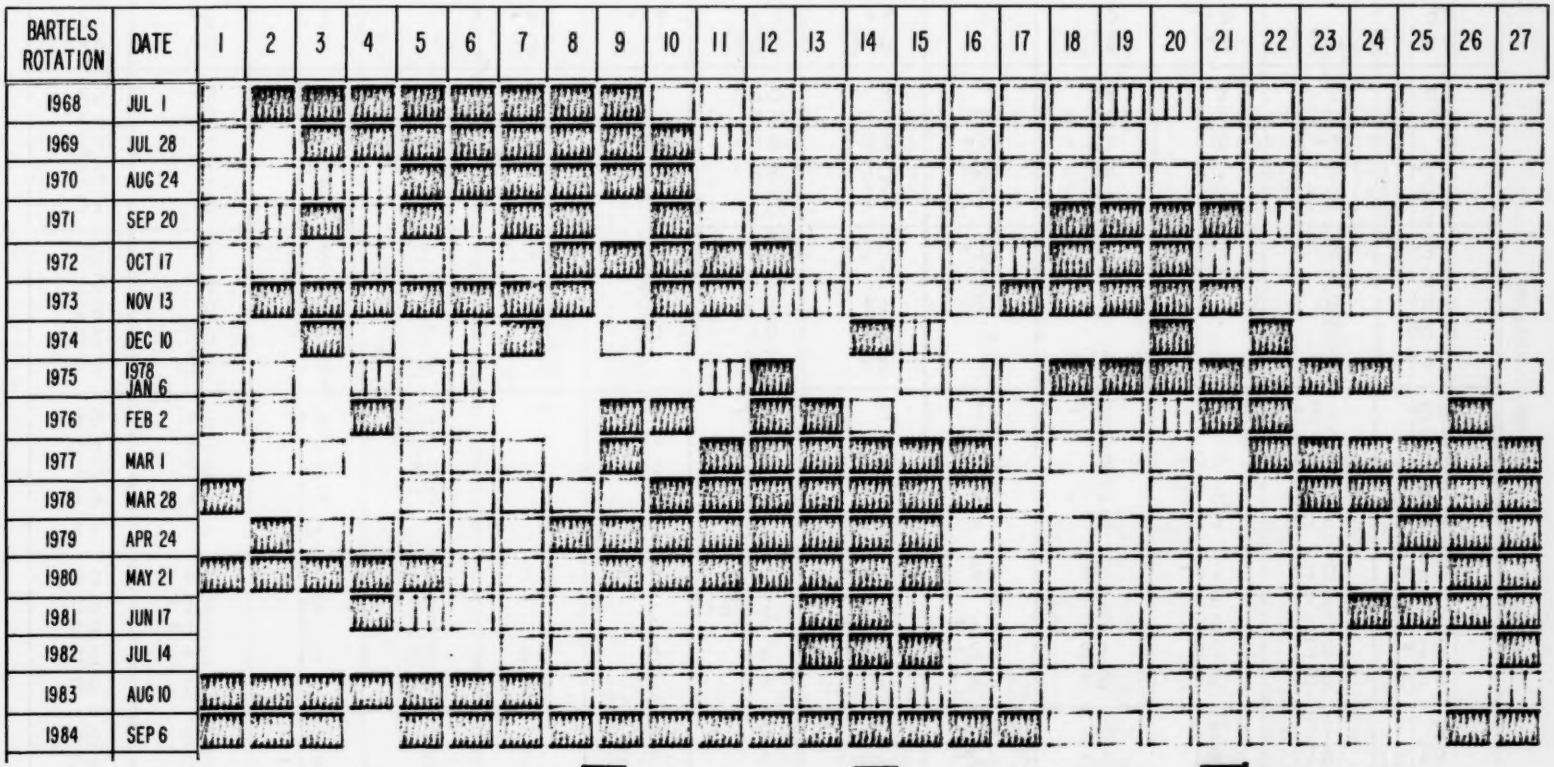
BARTELS ROTATION	DATE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
1967	JUN 9								TA		-			TA						AT A*									TA TA
1968	JUL 6										A*			T*	TA	TA		T*			AT				AT	-		-	
1969	AUG 2		TA						TA	-			TA	*								AT	TA						
1970	AUG 29			-	-	-		TA										AT	AT			AT	TA	TA	- AT	AT			
1971	SEP 25						-	-	-	-	-	-					TA				TA								
1972	OCT 22					-	AT														AT	AT				*			
1973	NOV 18			TA	AT						-		AT							*			*		*			
1974	DEC 15				-	-	-		AT	-		AT			AT	AT		AT		TA		TA		TA			*		
1975	1978 JAN 11		*	*					*			*	*					*			TA	-	AT			-		-	
1976	FEB 7						*	TA					-		-						-		*			TA	A*	TA	
1977	MAR 6	TA		-					AT			T*	*					TA			AT	AT		AT	AT	*	TA		
1978	APR 2							*	-		AT											AT	AT						
1979	APR 29		TA		*		TA	AT	AT	TA	-	-	T*							TA	TA		AT						
1980	MAY 26				TA		AT	AT				-				AT	TA				-					-	-	-	
1981	JUN 22	TA					A*					-	TA	TA	TA	AT			*					*	AT	AT -		AT		
1982	JUL 19									TA							-			TA					AT	AT *		TA		
1983	AUG 15					TA			AT		AT	AT		AT	TA						A*							TA		
1984	SEP 11			TA		AT				TA	T*						A*		-										

▒ = definitely towards the sun □ = definitely away from the sun

T = towards the sun A = away from the sun * = effect doubtful or not discernible - = missing data

The table shows daily inferences of the polarity of the interplanetary magnetic field. The first half of the day is based principally on magnetograms produced by the magnetometer at the Vostok Antarctic Station of the USSR. The magnetometer of the U.S. Air Weather Service now operated at Thule by the Danish Meteorological Institute is used for the second half of the day.

STANFORD MEAN SOLAR MAGNETIC FIELD



POLARITY OF THE MEAN SOLAR MAGNETIC FIELD: □ = FIELD >2μT, ▥ = -2μT ≤FIELD ≤2μT, ■ = FIELD <-2μT

No box visible indicates no data available for that day.

Note: Data are taken daily at 2000 UT. Dates given are not Bartels Rotation dates. These earlier dates correspond to the occurrence of phenomena on the sun which affect the Earth during the given Bartels Rotation.

STANFORD MEAN SOLAR MAGNETIC FIELD (MICROTESLA)

	1977			1978								
	OCT.	NOV.	DEC.	JAN.	FEB.	MARCH	APRIL	MAY	JUNE	JULY	AUG.	SEPT.
DAY												
01	9	6	-14	.	16	.	52	-12	-28	1	40	26
02	6	1	-10	.	31	22	46	-34	-22	13	39	32
03	3	-14	-7	14	26	12	43	-27	-12	15	42	15
04	13	-16	8	31	.	.	13	-27	-5	18	39	18
05	13	-11	26	.	-5	8	4	-29	6	24	31	2
06	11	-1	46	27	4	11	-15	-27	5	43	29	-24
07	-6	11	55	15	9	4	-32	-23	21	42	30	-12
08	-13	31	53	.	.	.	-53	-12	33	36	17	-7
09	-13	46	46	-1	.	-31	-52	3	41	16	-11	.
10	-4	48	26	11	-28	.	-41	24	40	-11	-10	-35
11	2	51	.	0	-43	-70	-32	41	23	-17	-15	-34
12	12	32	-2	.	.	-78	-4	50	12	-12	-22	-42
13	28	14	10	.	-41	-56	22	47	8	-38	-33	-36
14	35	-4	.	.	-23	-49	.	30	0	.	-43	-27
15	46	-10	1	.	3	-28	.	16	-24	.	-31	-26
16	39	-18	-6	0	.	-3	58	5	-38	.	-9	-36
17	20	-24	.	-3	31	18	37	1	.	.	5	-48
18	6	-5	6	.	22	54	11	-29	.	.	13	-44
19	6	-11	8	.	37	48	-9	-49	.	.	7	-50
20	1	-12	.	18	22	24	-30	-75	-16	23	7	-33
21	3	.	.	39	-1	.	-49	-79	0	21	5	-21
22	7	-7	.	10	-18	-23	-50	-59	24	16	4	-14
23	3	-4	-5	-4	-49	-49	-62	-37	51	6	-1	5
24	-3	0	-1	-15	.	-69	.	-21	52	3	1	31
25	-9	2	.	-17	.	-79	-13	-9	48	3	5	43
26	-5	4	.	-36	.	-73	10	1	30	-7	18	42
27	-5	7	.	-48	-34	-53	13	27	12	-13	.	40
28	-6	5	.	-33	.	-28	6	14	3	-6	.	29
29	5	-2	-9	-15		.	13	-10	-5	14	41	15
30	6	-11	.	14		.	18	-20	-10	27	41	2
31	8		-20	10		.		-27		33	35	

Dot symbol entry indicates no data available for the day.

BOUNDER GEOMAGNETIC SUBSTORM LOG

SEPTEMBER 1978

DATE	TIME OF ONSET	DIR.	COMMENTS
1	0345	East	1st of double onset
	0440	East	2nd of double onset
	0610	East	1st of multiple onset
	0630	East	2nd of multiple onset
	0650	≈Center	3rd of multiple onset, moderate SS
	0715	≈Center	4th of multiple onset, moderate SS
	0745	West	5th of multiple onset
	0920	West	1st of multiple onset
	0950	West	2nd of multiple onset
	1035	West	3rd of multiple onset
	1130	West	4th of multiple onset, moderate SS, College and Pacific stations H-component
2	0250	East	Weak
	0655	Center	Strong SS, center Boulder - Ft. Smith
	1115	West	Moderate SS
	1800		
3	0310		Onset of disturbed period lasting through 1600 UT. Numerous small SS with varying onset times/responses throughout network.
4	0345	East	Weak
	0420	East	Weak
	0650	West	1st of multiple onset
	0725	West	2nd of multiple onset
	0810	West	3rd of multiple onset
	1105	West	
5	0510		1st of multiple onset; weak, slow onset Lynn Lake
	0540	West	2nd of multiple onset
	0620	West	3rd of multiple onset
	1855		Small sudden impulse on H-component of all mid and low latitude stations
	2040		
6	0515	East	Onset of disturbed period along oval lasting through 1400 UT.
	0625	≈center	
	0820	West	Strong SS Southern Alaska, center of current system between College - Talkeetna
7	0925	West	Weak
	1010	West	
	2250		
8	0215	East	1st of multiple onset
	0235	East	2nd of multiple onset
	0400	East	3rd of multiple onset
	0500	East	1st of double onset
	0525	East	2nd of double onset
	0740	West	
	0830	West	
9	0245		Slow rising positive impulse on H-component all mid and low latitude stations.
	0730		Onset of mag storm conditions lasting through 1850 UT.
10	0100		Positive sudden impulse on H-component all mid and low latitude stations. Unsettled period 0925-1525 UT, no distinct onset.
11	1220		Weak
	1315		Initiation of strong SS at College
	1400		Nominal initiation of strong SS Norman Wells eastward, SS continues intensification at College.
	1500		Series of injections into strong SS until 1600 UT.
	1700		Network recovered from strong SS.
12	0120		Weak
	0445	East	Weak, Lynn Lake eastward
	0710	West	Weak
	0735	West	Beginning of moderate SS centered near Ft. Smith
	0800		Injection into SS as SS initiation moves westward
	0820		Injection into SS as SS initiation moves westward
	0850	WEst	Beginning of moderate SS at College
	1110		Weak
	1135		Weak
	1210		Weak
	1340		Auroral stations recover from SS activity near 1600 UT.

DATE	TIME OF ONSET	DIR.	COMMENTS
13	0615	East	Weak, Lynn Lake eastward
	0835	West	Moderate SS centered near Ft. Simpson
14	0100	East	1st of double onset
	0130	East	2nd of double onset
15	0730	West	Weak, oval stations only
	1140	West	Weak, oval stations only
16	0525	East	Weak, SS centered at Back
17	0440	East	SS centered near Back
	0655	East	SS centered near Lynn Lake
	0800	West	
18	1225		Weak; oval stations, Ft. Smith westward
19			Quiet day
20			Quiet day
21	0345	East	Weak
	0435	East	
	0525	East	Weak
22	0350	East	Localized SS, Back - Eskimo Pt.
	0800	≈Center	Moderate SS centered near Ft. Simpson
	1710		Field unsettled 1200-2000 UT.
23			Field generally unsettled in network after 0400 UT, no distinct onsets
24	0355	East	
	0545	≈Center	Weak SS
	0635	≈Center	Weak SS
			Strong H-component disturbance at Cape Parry and Sachs Harbour after 1600 UT.
25			Field became unsettled 0225 UT, disturbed 0525 UT, with a SSC at 0718 UT. - magnetic storm followed.
26			Field disturbed after 0200 UT; only major SS activity listed.
	0425	East	
	0510	East	Strong SS centered near Lynn Lake
	0755	West	Intense SS centered near College
	0825		Injection into existing SS
	0905		Injection into existing SS
	1500		
	1610		
27			Field disturbed all day; only more significant SS listed.
	0025	East	
	0100	East	
	0435	East	
	0820	West	
	0950	West	
	1105	West	
	1705		
	2005		
28			Field disturbed all day; nearly continuous SS activity 03-15 UT.
29			SSC 0300 UT; mag storm through 1900 UT.
30	0535	West	Strong response Inuvik to Sachs Harbour
	0805	West	
	0840	West	

Dot symbol entry indicates no data available for the day.

AUGUST 1978 DATA

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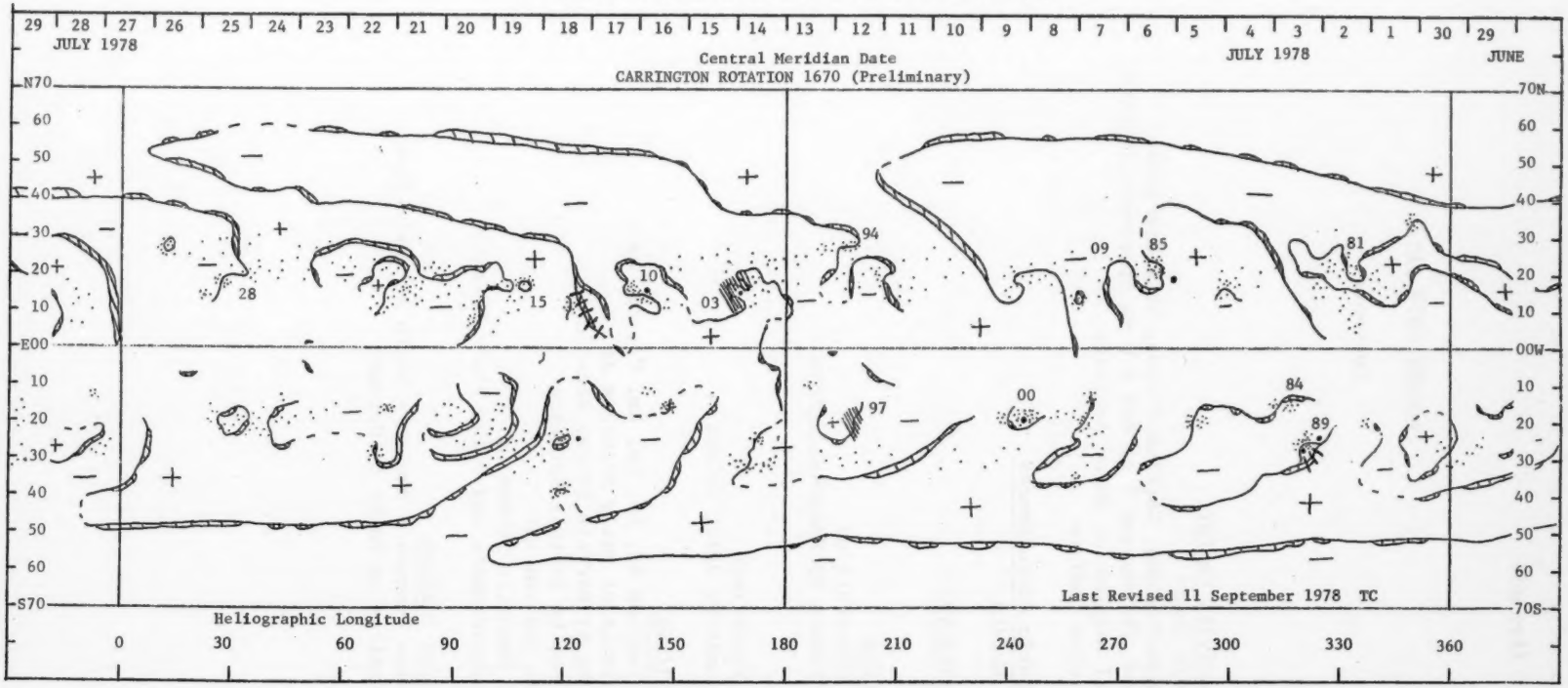
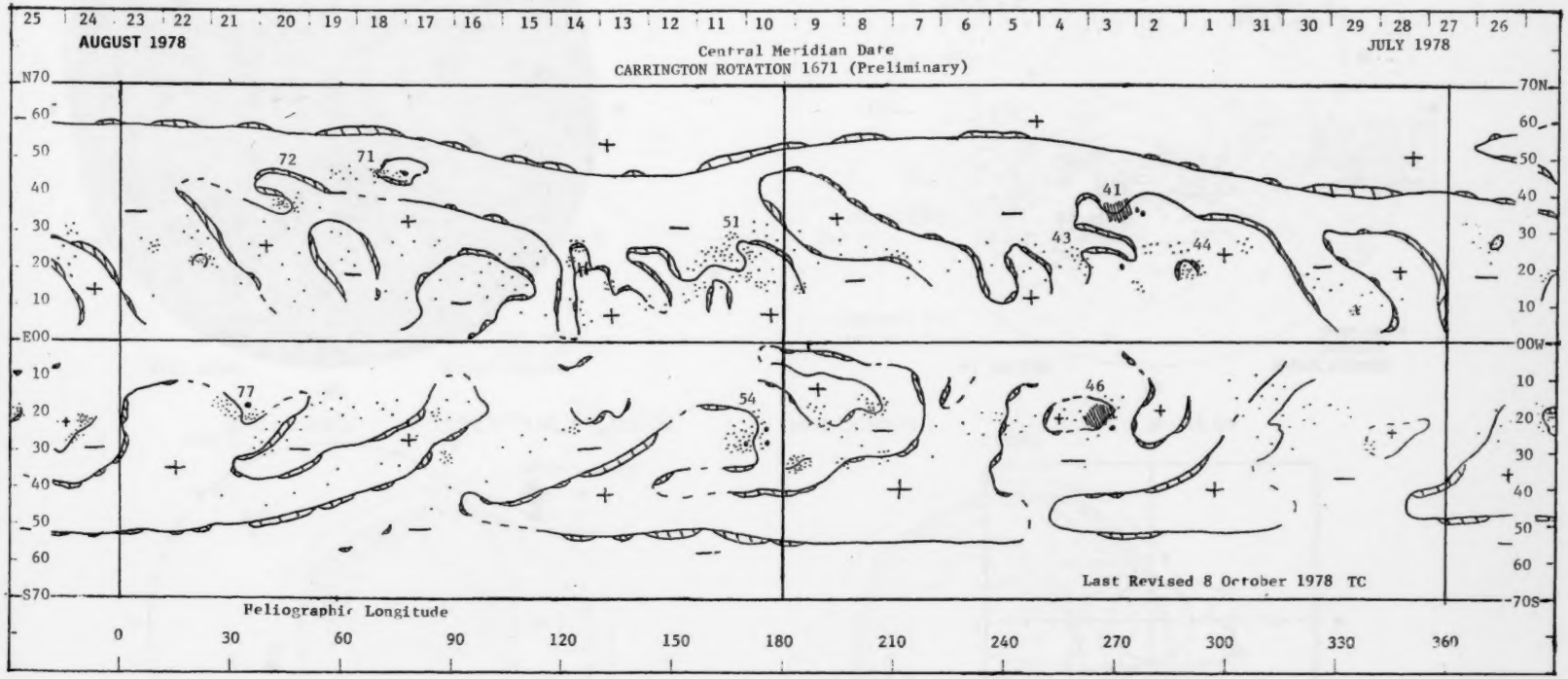
Hα SYNOPTIC CHART

CARRINGTON ROTATION 1670 (PRELIMINARY)



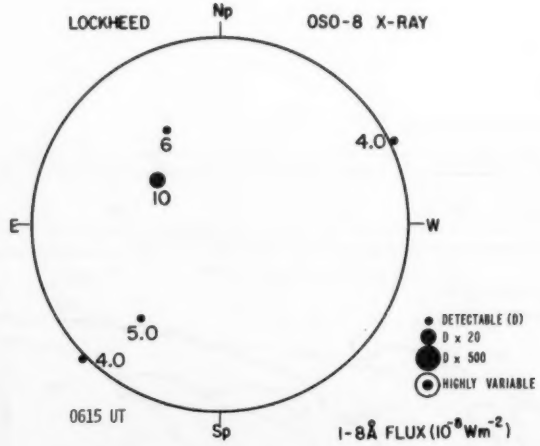
Hα SYNOPTIC CHART

CARRINGTON ROTATION 1671 (PRELIMINARY)



AUGUST 1, 1978 (P = 10.69, B_0 = 5.78, L_0 = 301.36)

LOCKHEED OSO-8 X-RAY

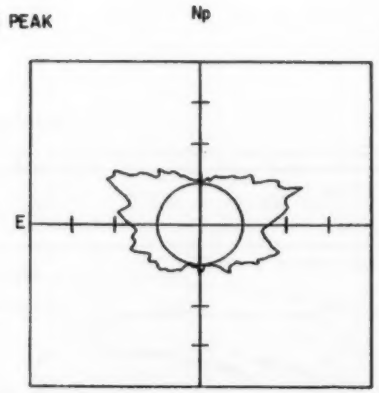


0615 UT

1-8Å FLUX (10^{-6} Wm^{-2})

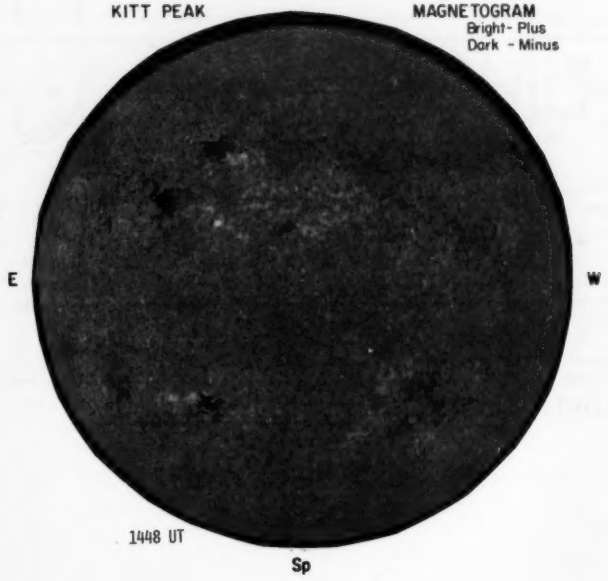
SACRAMENTO PEAK

CORONA (1.15 $R_\odot$)
5303 Å



1528 UT

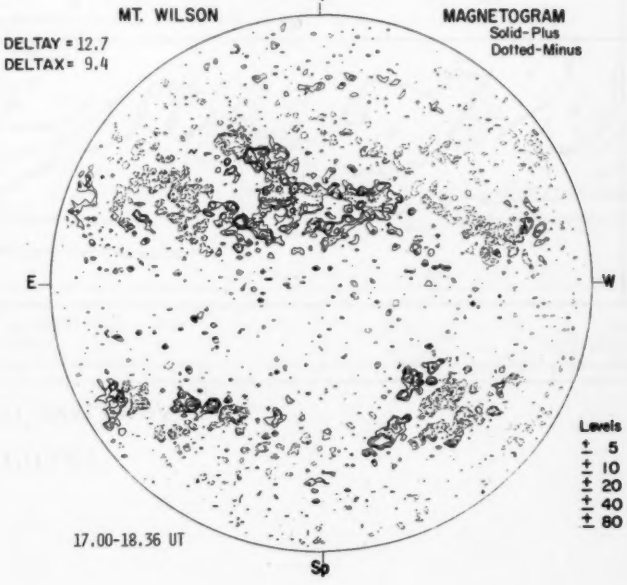
KITT PEAK MAGNETOGRAM
Bright - Plus
Dark - Minus



1448 UT

MT. WILSON MAGNETOGRAM
Solid - Plus
Dotted - Minus

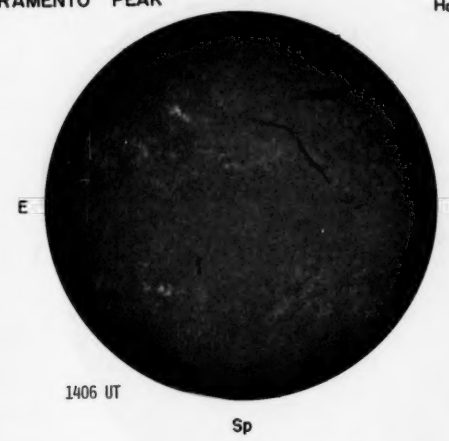
DELTAY = 12.7
DELTAX = 9.4



17.00-18.36 UT

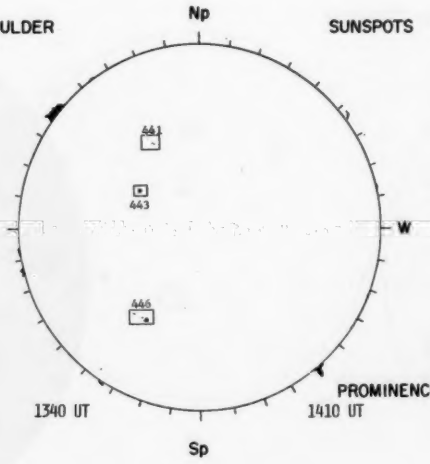
01

SACRAMENTO PEAK



1406 UT

Hα BOULDER



1340 UT

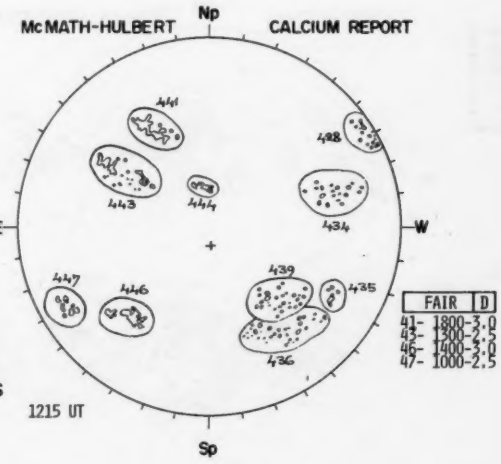
SUNSPOTS

PROMINENCES

1410 UT

McMATH-HULBERT

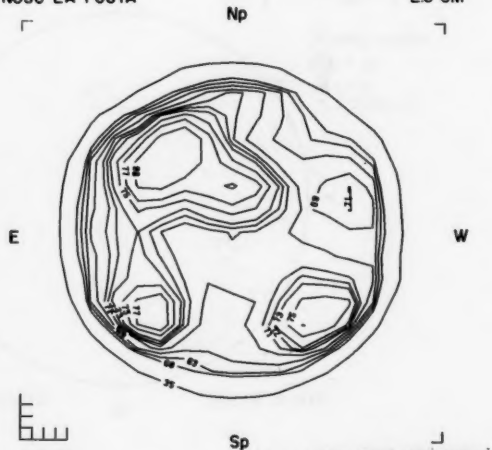
CALCIUM REPORT



1215 UT

FAIR	D
41- 1800-3.0	
43- 1300-2.5	
46- 1400-3.0	
47- 1000-2.5	

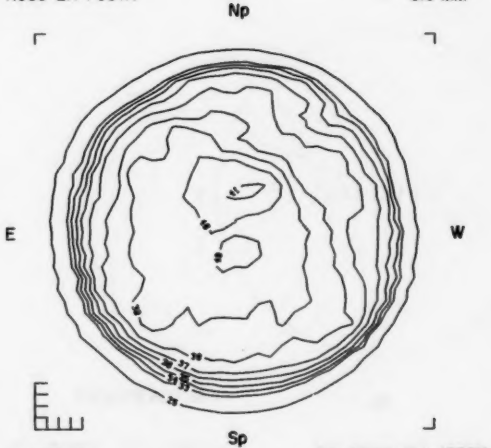
NOSC LA POSTA 2.0 CM



1652 UT

Ant. Temp. Unit 100°K

NOSC LA POSTA 8.6 MM

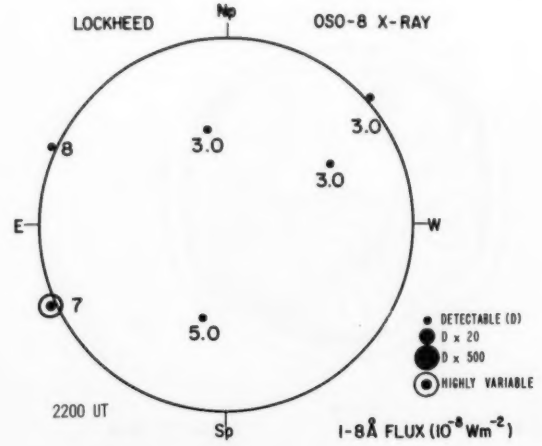


1555 UT

Ant. Temp. Unit 100°K

AUGUST 2, 1978 (P = 11.09, B_0 = 5.85, L_0 = 288.14)

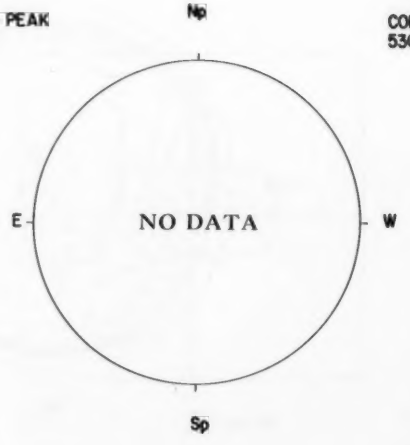
LOCKHEED OSO-8 X-RAY



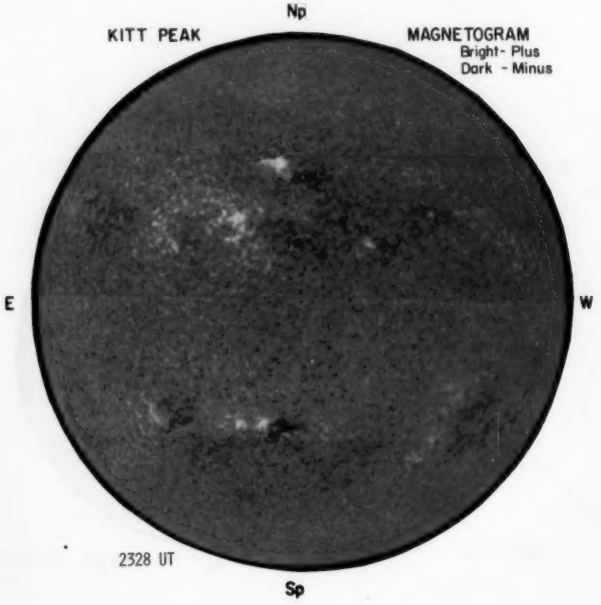
2200 UT

I-8Å FLUX (10^{-8} Wm^{-2})

SACRAMENTO PEAK CORONA (1.15 $R_\odot$) 5303 Å



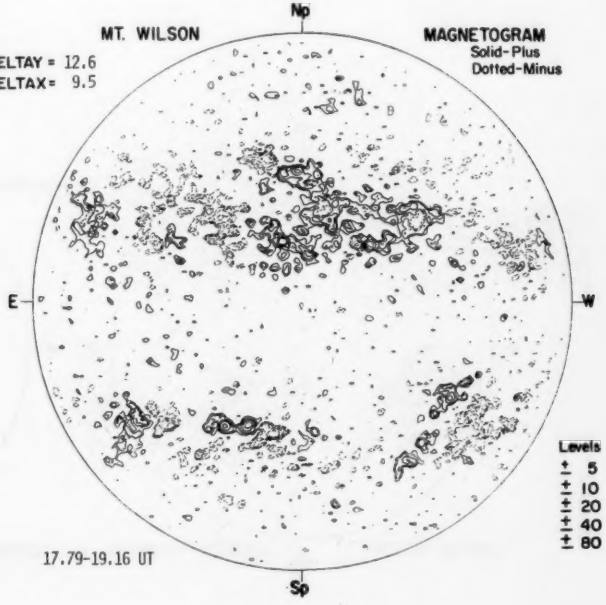
KITT PEAK MAGNETOGRAM Bright - Plus Dark - Minus



2328 UT

MT. WILSON MAGNETOGRAM Solid - Plus Dotted - Minus

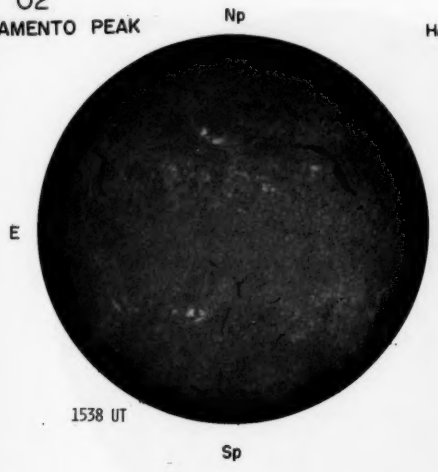
DELTAY = 12.6
DELTAX = 9.5



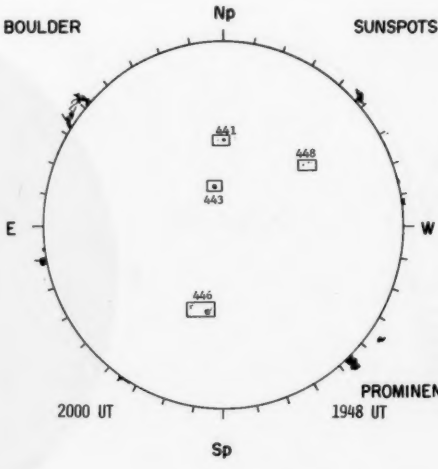
17.79-19.16 UT

02

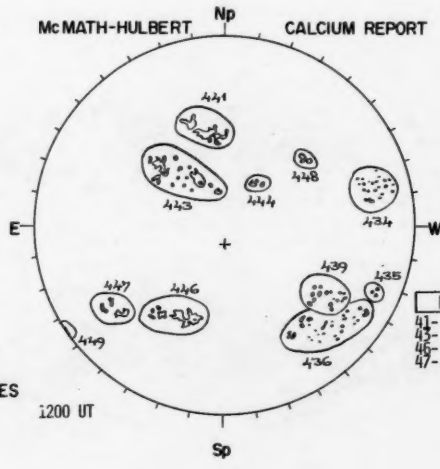
ACRAMENTO PEAK



Hα BOULDER



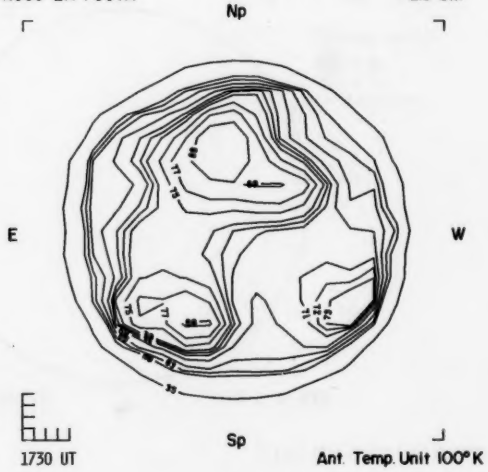
SUNSPOTS



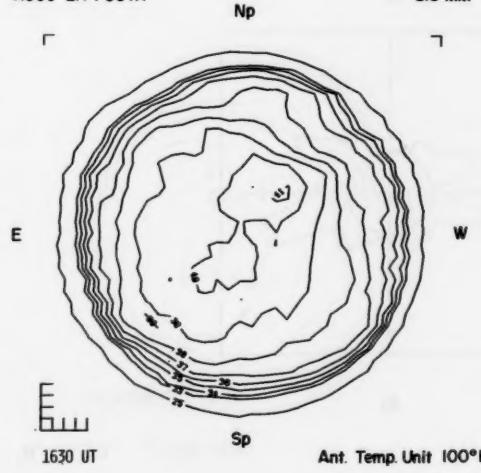
McMATH-HULBERT CALCIUM REPORT

PROMINENCES

NOSC LA POSTA 2.0 CM

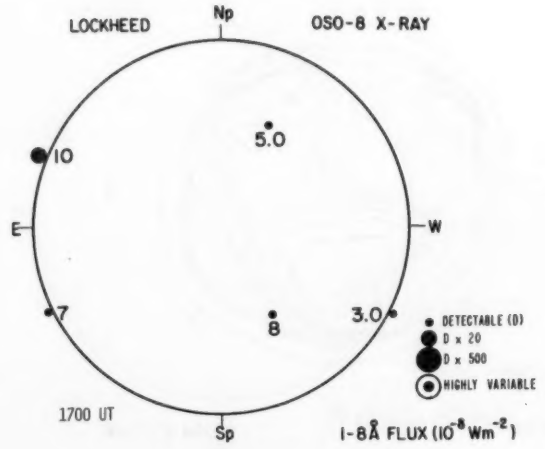


NOSC LA POSTA 8.6 MM



AUGUST 4, 1978 (P = 11.87, B_o = 5.99, L_o = 261.69)

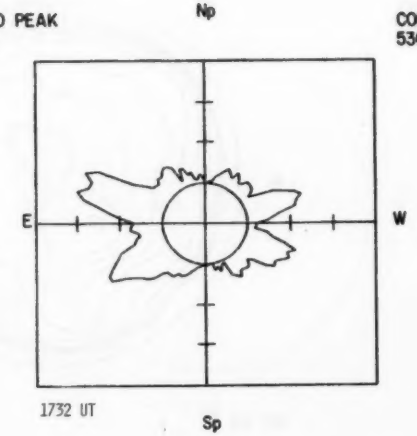
LOCKHEED OSO-8 X-RAY



1700 UT

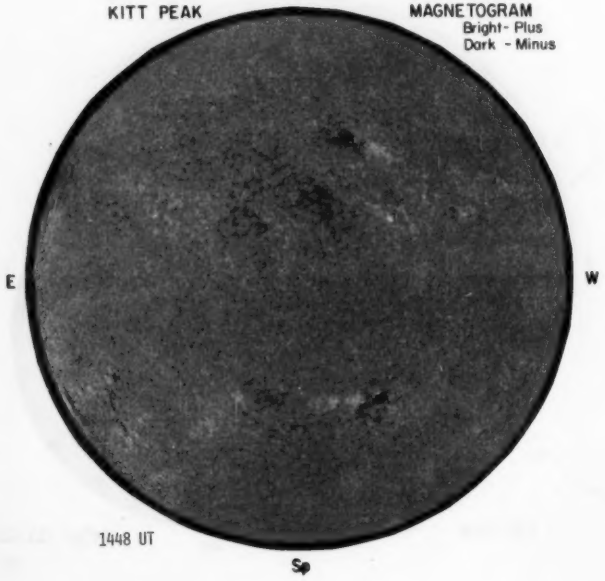
1-8Å FLUX (10^{-8} Wm^{-2})

SACRAMENTO PEAK CORONA (1.15 $R_\odot$) 5303 Å



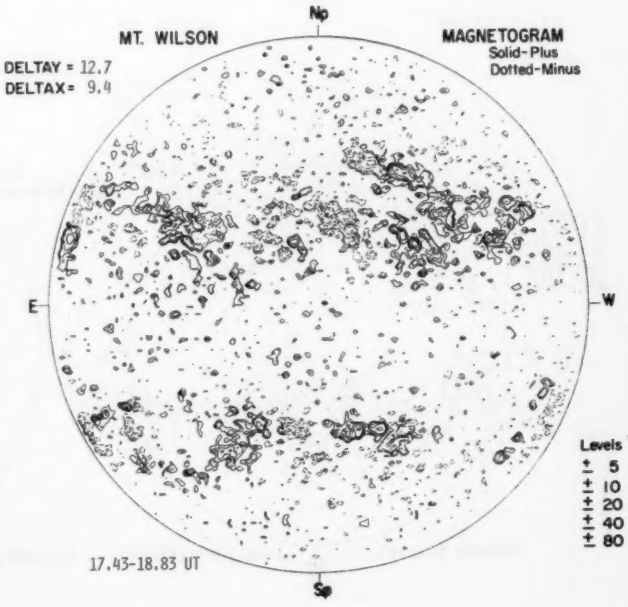
1732 UT

KITT PEAK MAGNETOGRAM
Bright - Plus
Dark - Minus



1448 UT

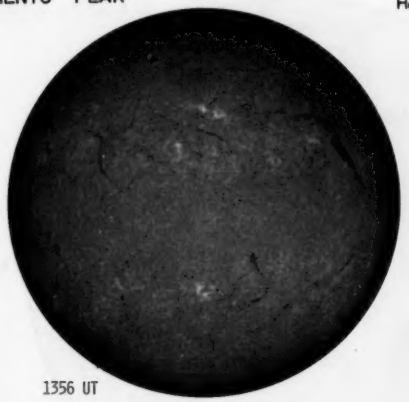
MT. WILSON MAGNETOGRAM
Solid - Plus
Dotted - Minus
DELTAY = 12.7
DELTAX = 9.4



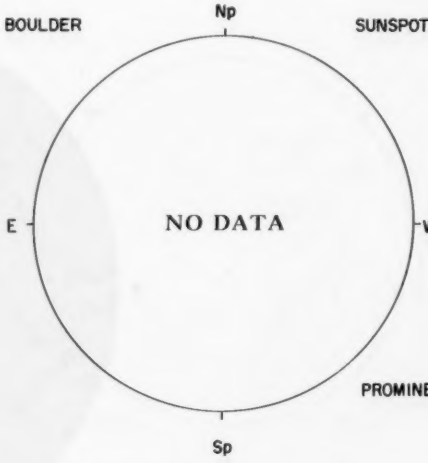
17.43-18.83 UT

03

SACRAMENTO PEAK



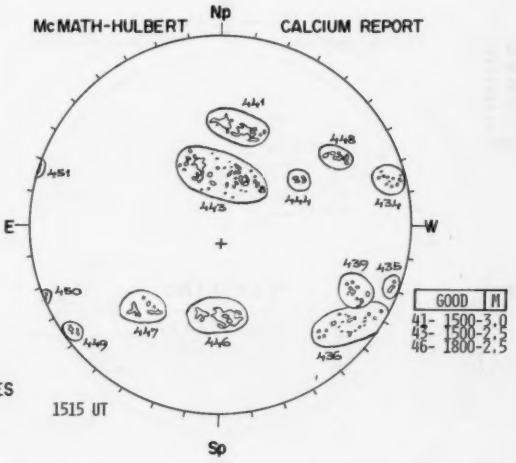
Ha BOULDER



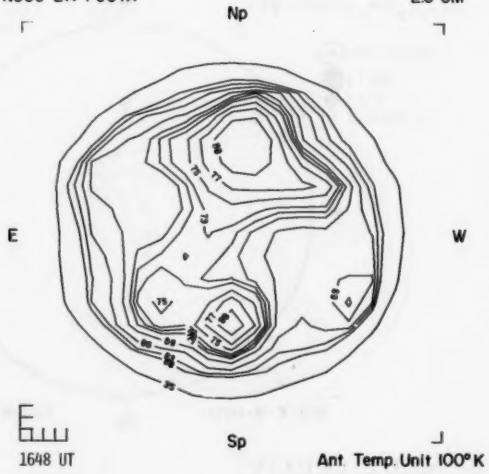
SUNSPOTS

PROMINENCES

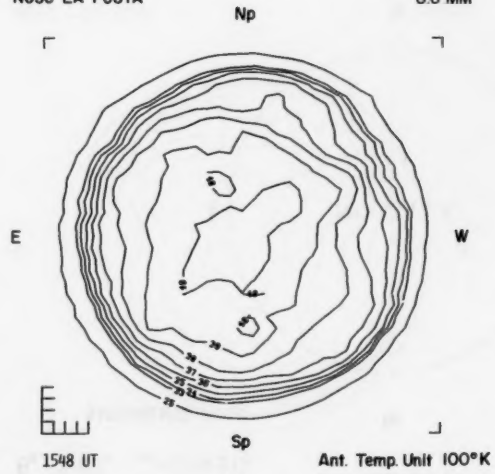
McMATH-HULBERT CALCIUM REPORT



NOSC LA POSTA 2.0 CM

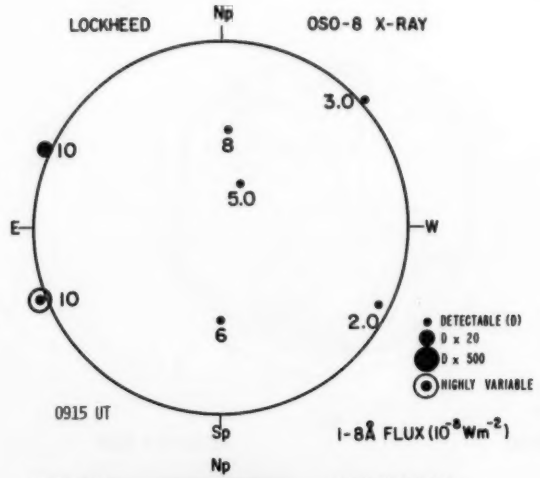


NOSC LA POSTA 8.6 MM



AUGUST 3, 1978 (P = 11.48, B_o = 5.92, L_o = 274.91)

LOCKHEED OSO-8 X-RAY

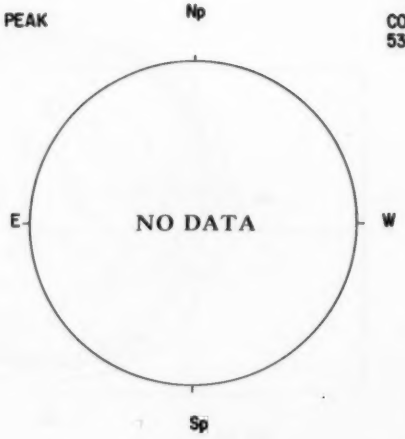


0915 UT

1-8Å FLUX (10^{-8} Wm^{-2})

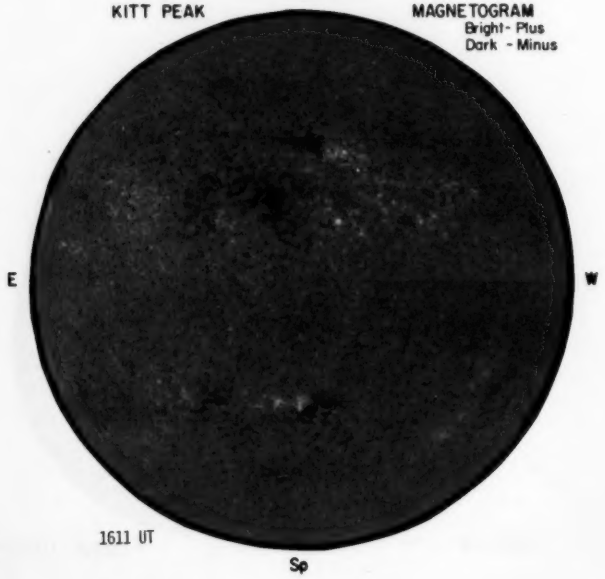
SACRAMENTO PEAK

CORONA (1.15 $R_\odot$)
5303 Å



KITT PEAK

MAGNETOGRAM
Bright - Plus
Dark - Minus

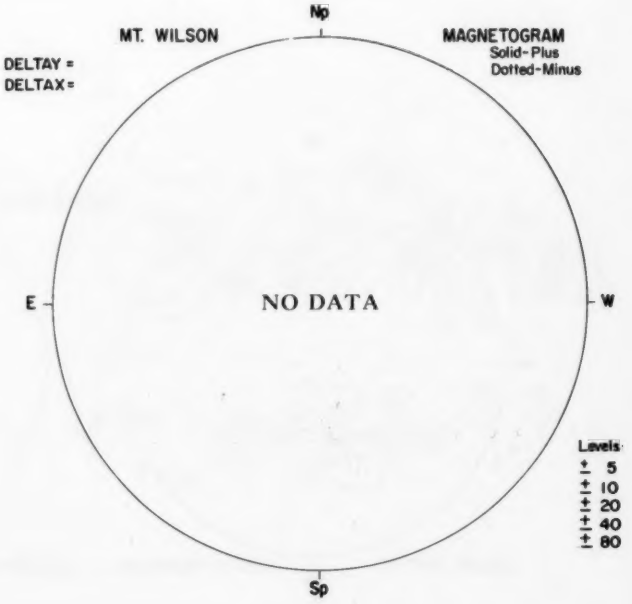


1611 UT

MT. WILSON

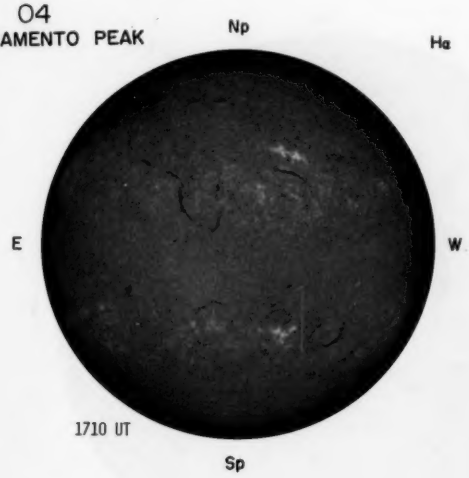
DELTAY =
DELTAX =

MAGNETOGRAM
Solid - Plus
Dotted - Minus



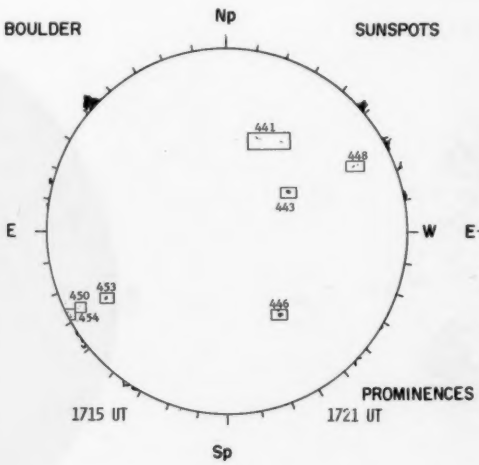
04

SACRAMENTO PEAK



1710 UT

Hα BOULDER

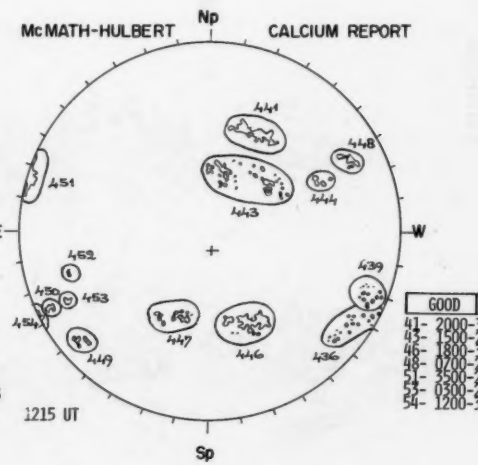


1715 UT 1721 UT

SUNSPOTS

PROMINENCES

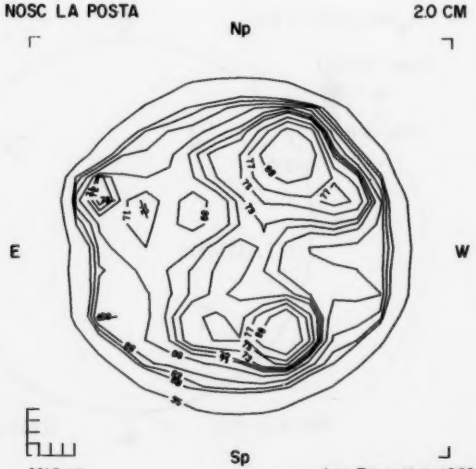
McMATH-HULBERT CALCIUM REPORT



1215 UT

GOOD	S
41- 2000	3.0
43- 1500	2.5
46- 1800	3.0
48- 0700	2.5
51- 3500	2.5
52- 0300	2.5
54- 1200	3.0

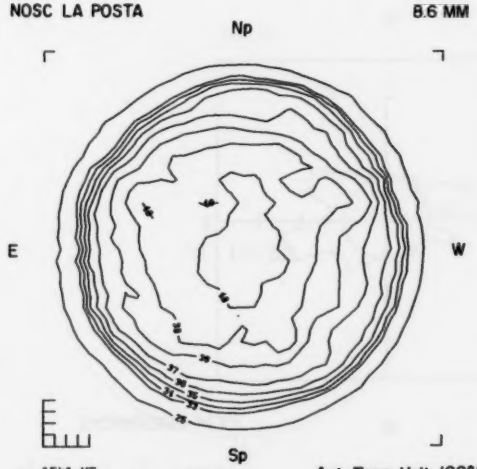
NOSC LA POSTA 2.0 CM



1645 UT

Ant. Temp. Unit 100°K

NOSC LA POSTA 8.6 MM

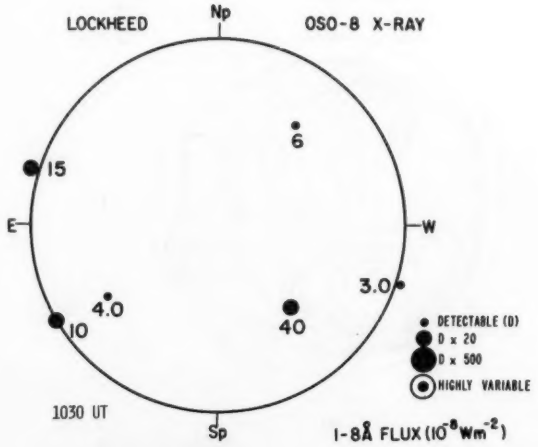


1541 UT

Ant. Temp. Unit 100°K

AUGUST 5, 1978 (P = 12.26, B_0 = 6.06, L_0 = 248.47)

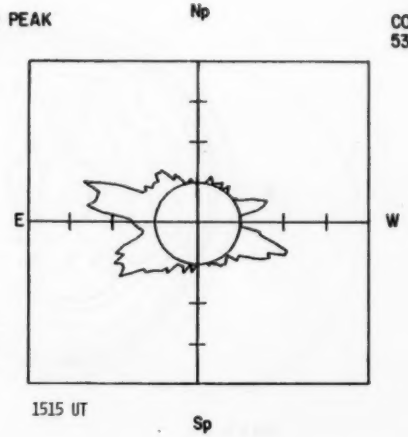
LOCKHEED OSO-8 X-RAY



1030 UT

1-8Å FLUX (10^{-8} Wm^{-2})

SACRAMENTO PEAK

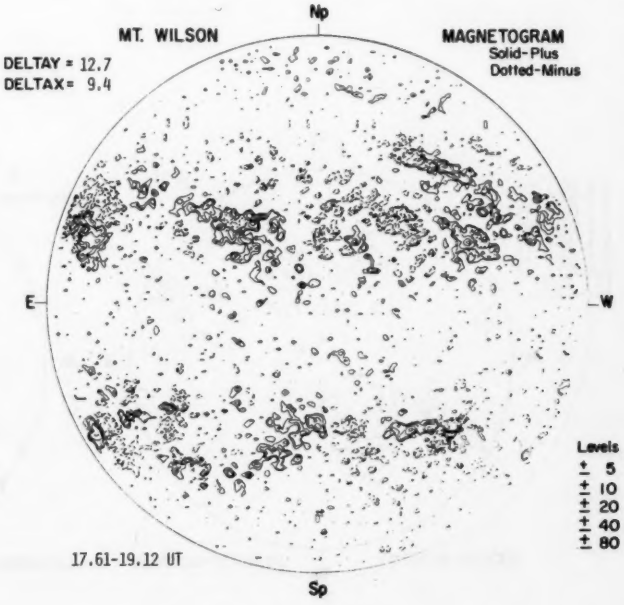


1515 UT

KITT PEAK MAGNETOGRAM
Bright - Plus
Dark - Minus

1559 UT

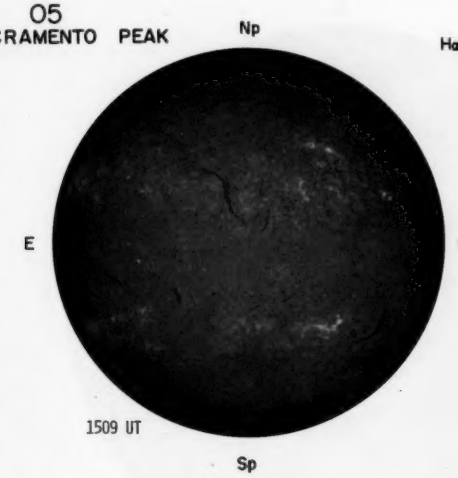
MT. WILSON MAGNETOGRAM
Solid - Plus
Dotted - Minus
DELTAY = 12.7
DELTAX = 9.4



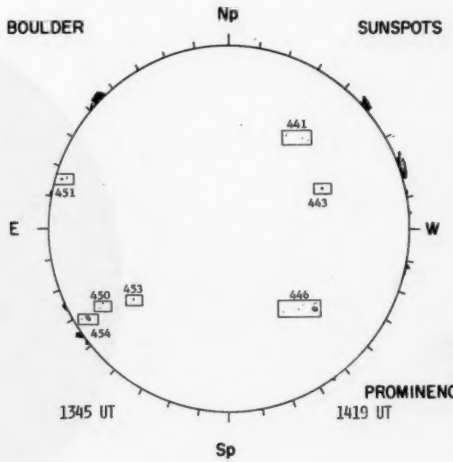
17.61-19.12 UT

05

SACRAMENTO PEAK



Hα BOULDER



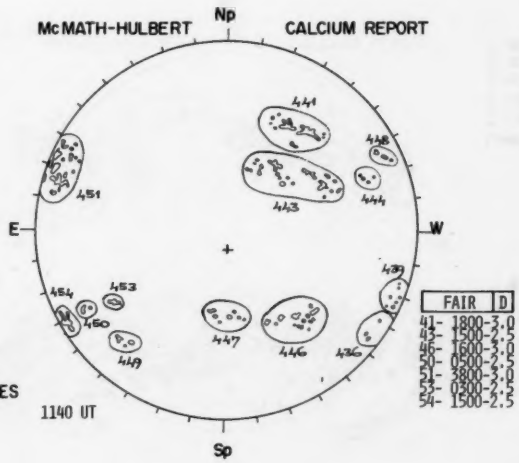
SUNSPOTS

PROMINENCES

1419 UT

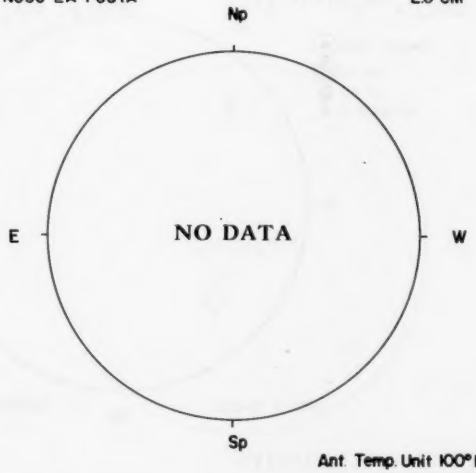
McMATH-HULBERT

CALCIUM REPORT



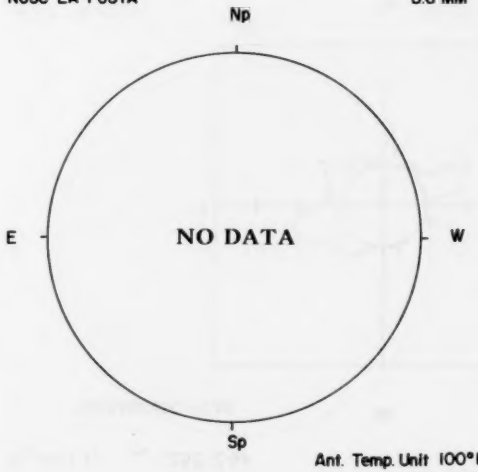
FAIR	D
41- 1800-3.0	
44- 1500-2.5	
45- 1500-2.5	
46- 1600-3.0	
50- 0500-2.5	
51- 2300-3.0	
53- 0300-2.5	
54- 1500-2.5	

NOSC LA POSTA 2.0 CM



Ant. Temp. Unit 100°K

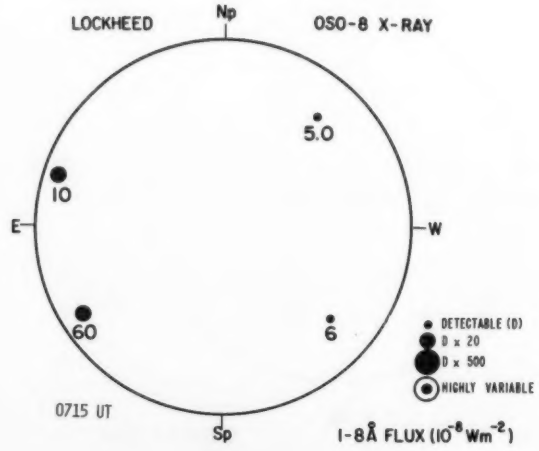
NOSC LA POSTA 8.6 MM



Ant. Temp. Unit 100°K

AUGUST 6, 1978 (P = 12.64 B_0 = 6.13, L_0 = 235.24)

LOCKHEED OSO-8 X-RAY

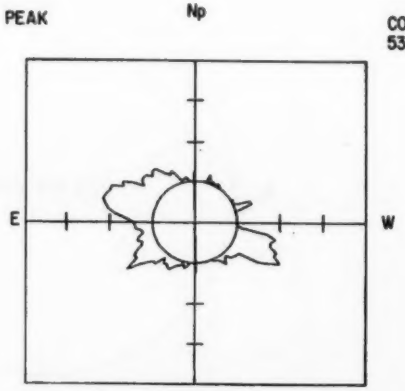


0715 UT

1-8Å FLUX (10^{-8} Wm^{-2})

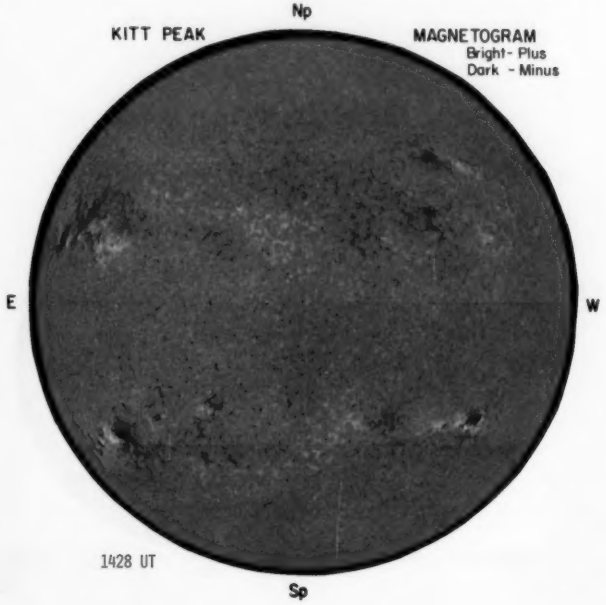
SACRAMENTO PEAK

CORONA (1.15 $R_\odot$)
5303 Å



1424 UT

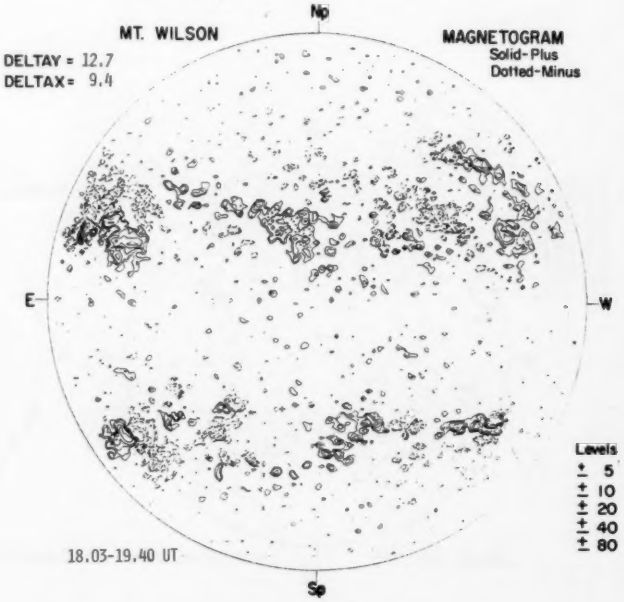
KITT PEAK MAGNETOGRAM
Bright - Plus
Dark - Minus



1428 UT

MT. WILSON MAGNETOGRAM
Solid - Plus
Dotted - Minus

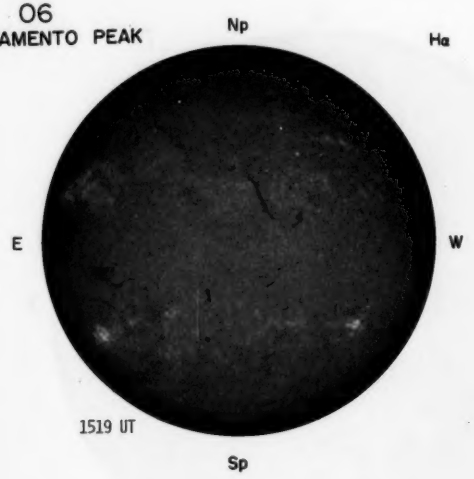
DELTAY = 12.7
DELTAX = 9.4



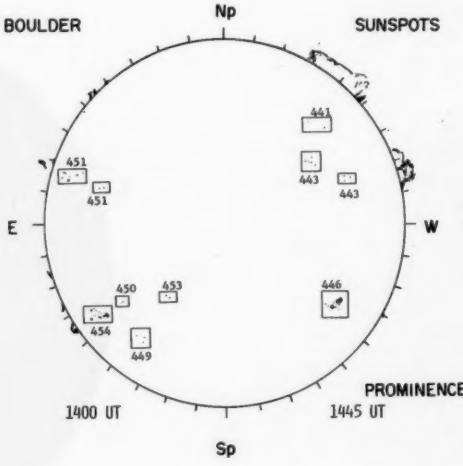
18.03-19.40 UT

06

SACRAMENTO PEAK



BOULDER

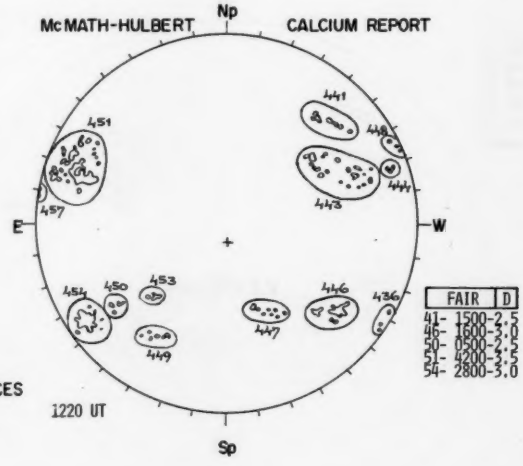


SUNSPOTS

PROMINENCES

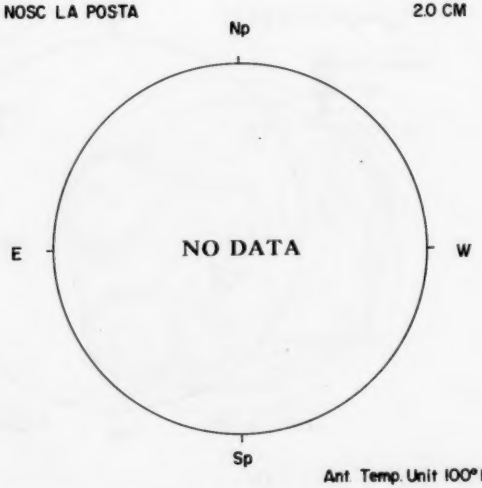
McMATH-HULBERT

CALCIUM REPORT



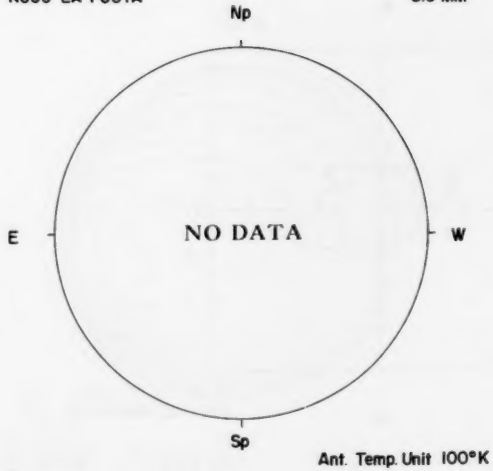
FAIR	D
41- 1500-	2.5
46- 1600-	3.0
50- 0500-	2.5
51- 4200-	3.5
54- 2800-	3.0

NOSC LA POSTA 2.0 CM



Ant. Temp. Unit 100°K

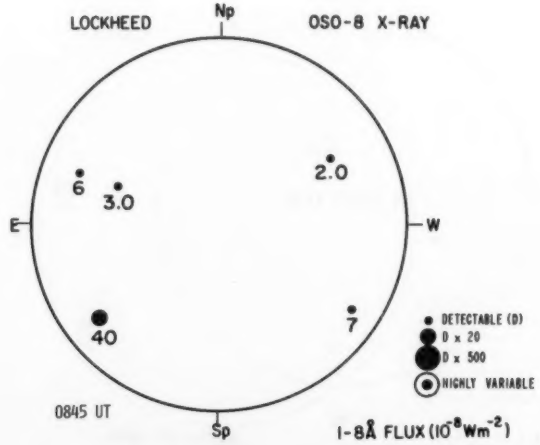
NOSC LA POSTA 8.6 MM



Ant. Temp. Unit 100°K

AUGUST 7, 1978 (P = 13.02, B_o = 6.19, L_o = 222.02)

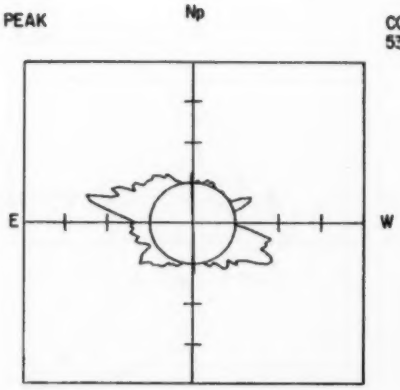
LOCKHEED OSO-8 X-RAY



0845 UT

1-8Å FLUX (10^{-8} Wm^{-2})

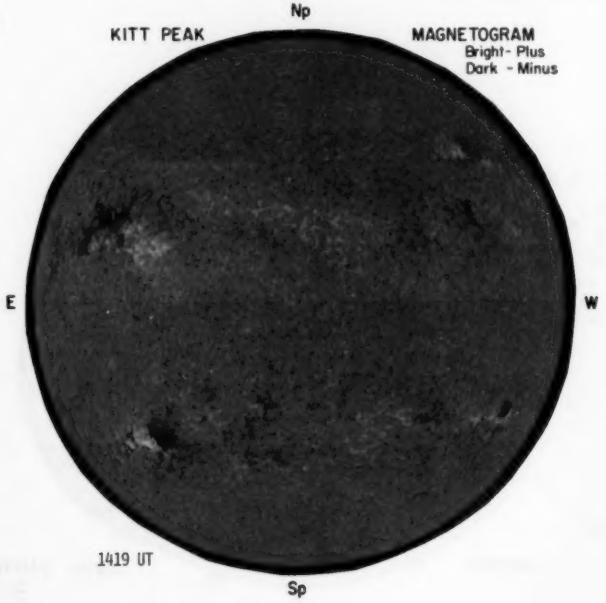
SACRAMENTO PEAK



1435 UT

KITT PEAK MAGNETOGRAM

Bright - Plus
Dark - Minus

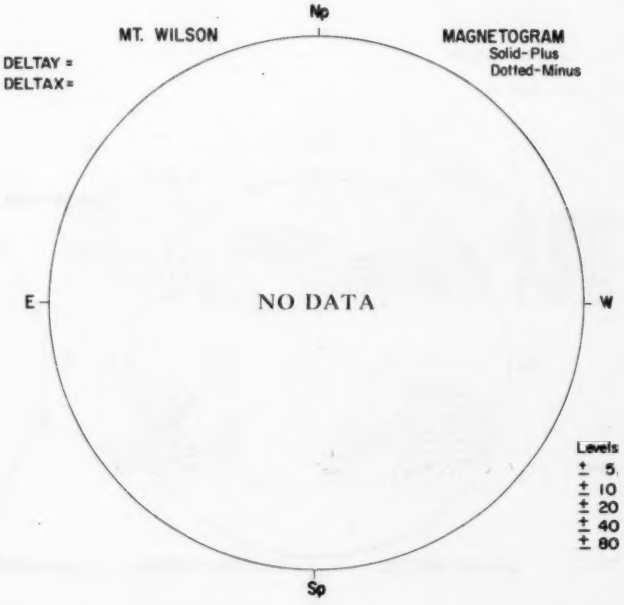


1419 UT

MT. WILSON MAGNETOGRAM

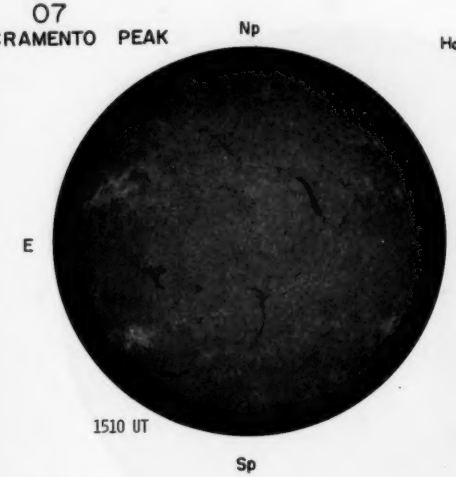
Solid - Plus
Dotted - Minus

DELTAY =
DELTAX =

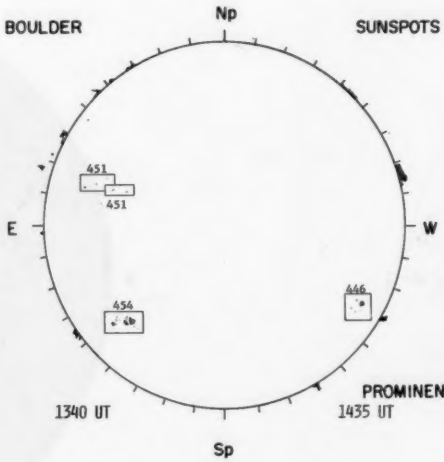


07

ACRAMENTO PEAK



Hα BOULDER

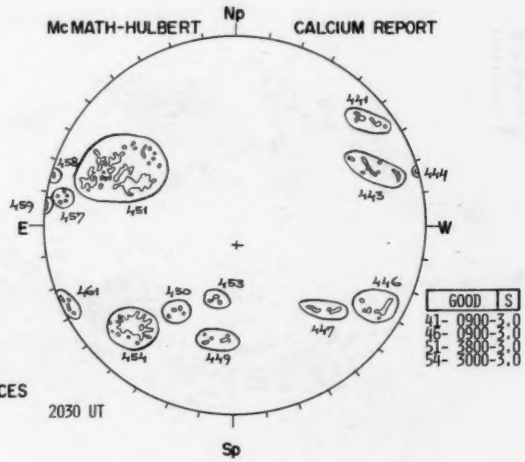


SUNSPOTS

PROMINENCES

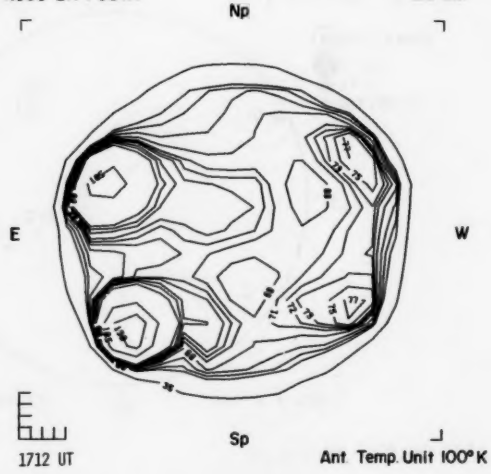
1435 UT

McMATH-HULBERT CALCIUM REPORT



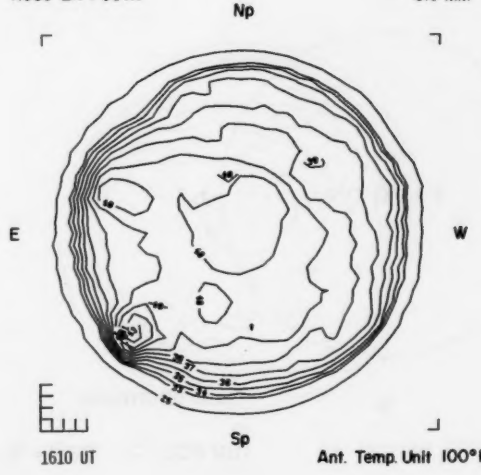
GOOD	S
41- 0900	3.0
46- 0600	3.0
51- 3800	3.0
54- 3000	3.0

NOSC LA POSTA 2.0 CM



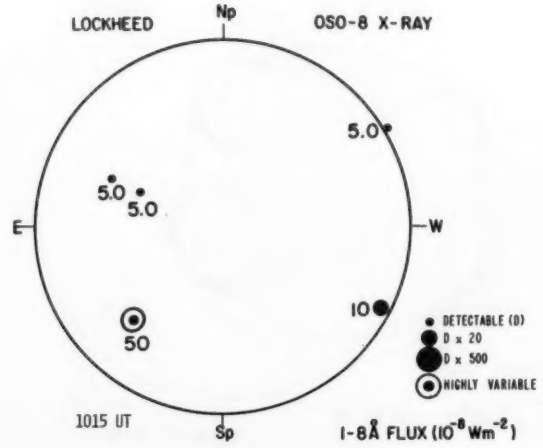
Ant. Temp. Unit 100°K

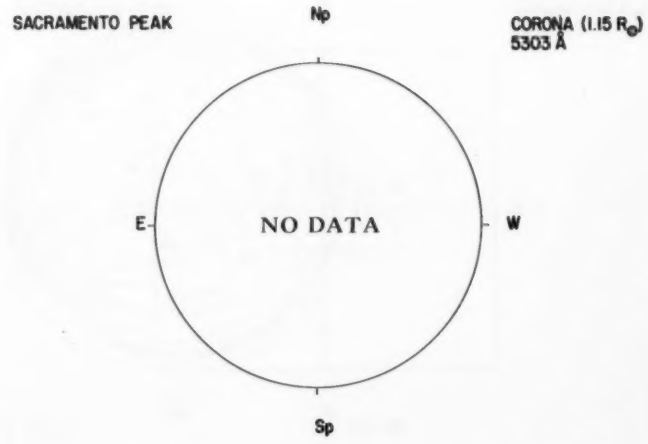
NOSC LA POSTA 8.6 MM

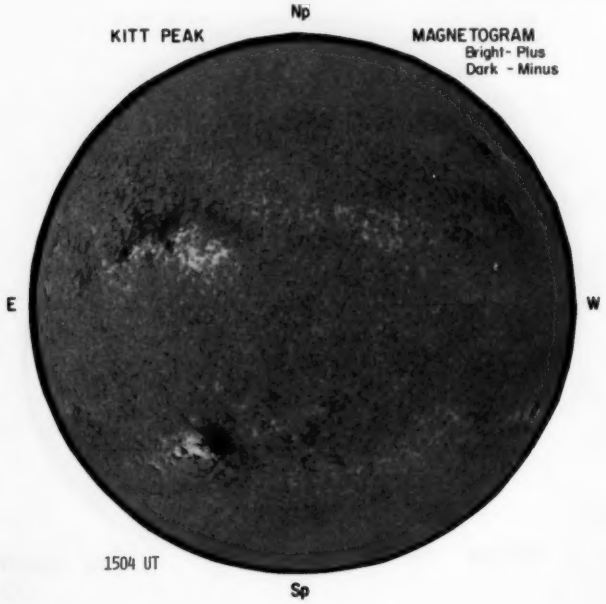


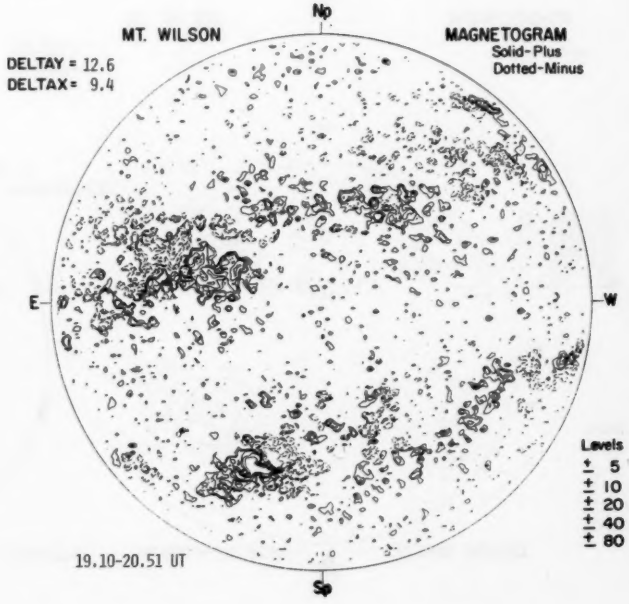
Ant. Temp. Unit 100°K

AUGUST 8, 1978 (P = 13.40, B_0 = 6.25, L_0 = 208.80)



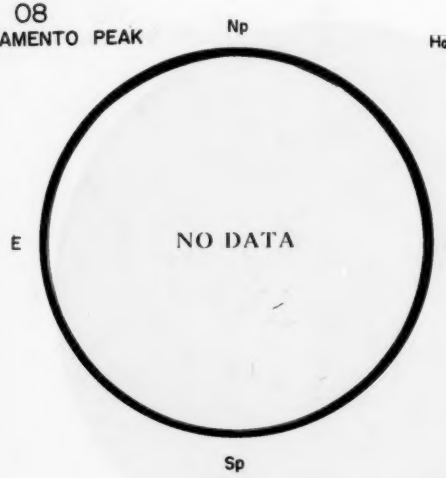




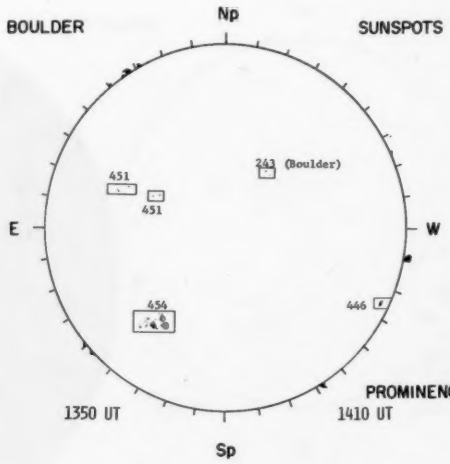


08

SACRAMENTO PEAK



Hα BOULDER



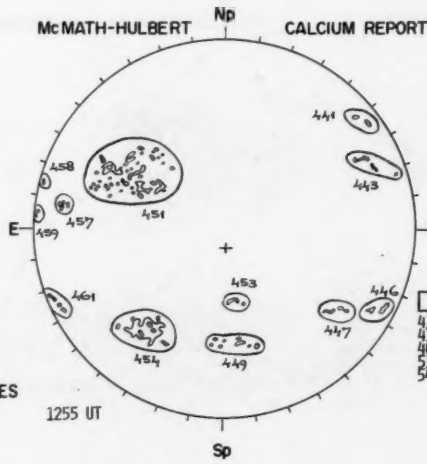
1350 UT

SUNSPOTS

PROMINENCES

1410 UT

McMATH-HULBERT

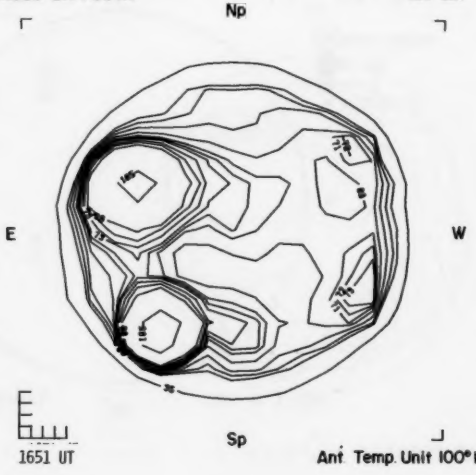


1255 UT

CALCIUM REPORT

FAIR	S
41- 0500-3.0	
43- 0400-2.5	
46- 0600-2.0	
51- 2400-3.0	
54- 3000-3.0	

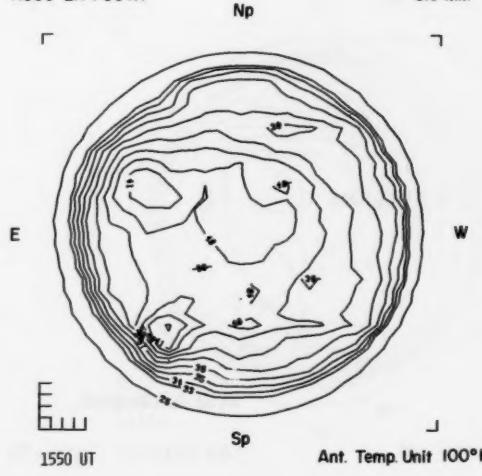
NOSC LA POSTA 2.0 CM



1651 UT

Ant. Temp. Unit 100°K

NOSC LA POSTA 8.6 MM



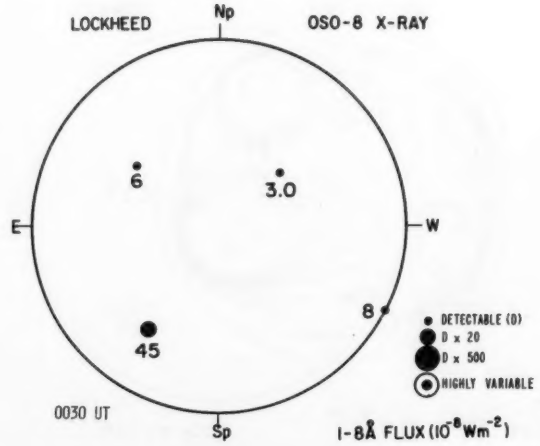
1550 UT

Ant. Temp. Unit 100°K

63
Aug 78

AUGUST 9, 1978 (P = 13.77, B_o = 6.31, L_o = 195.58)

LOCKHEED OSO-8 X-RAY

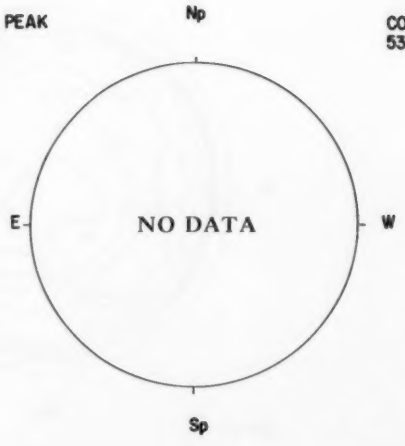


0030 UT

1-8Å FLUX (10^{-8} Wm^{-2})

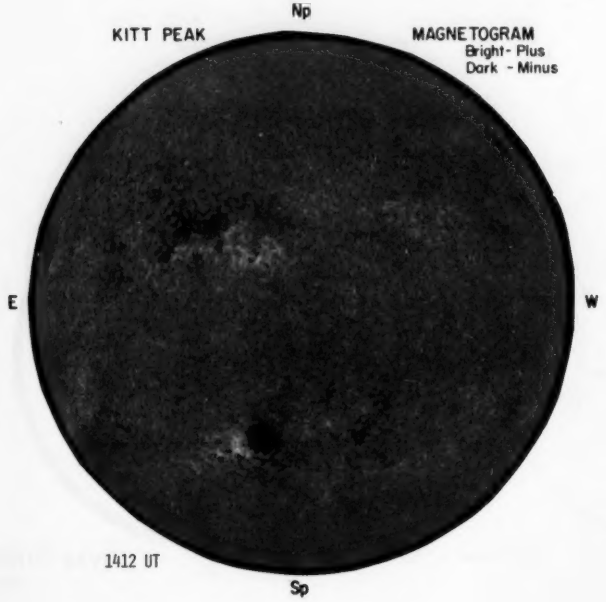
SACRAMENTO PEAK

CORONA (1.15 $R_\odot$)
5303 Å



KITT PEAK

MAGNETOGRAM
Bright - Plus
Dark - Minus

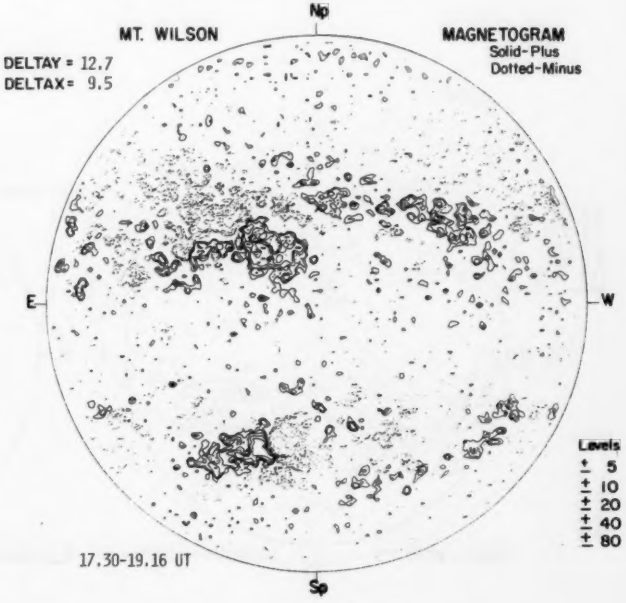


1412 UT

MT. WILSON

MAGNETOGRAM
Solid - Plus
Dotted - Minus

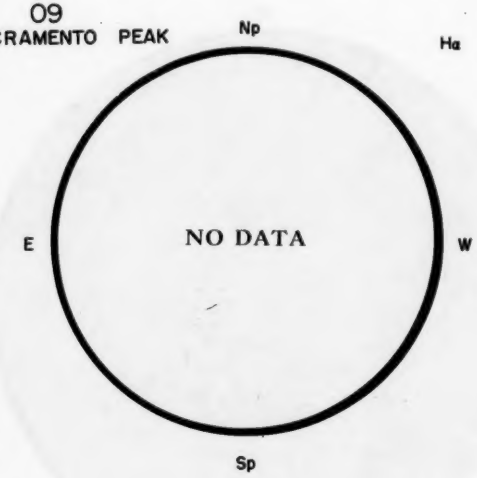
DELTAY = 12.7
DELTAX = 9.5



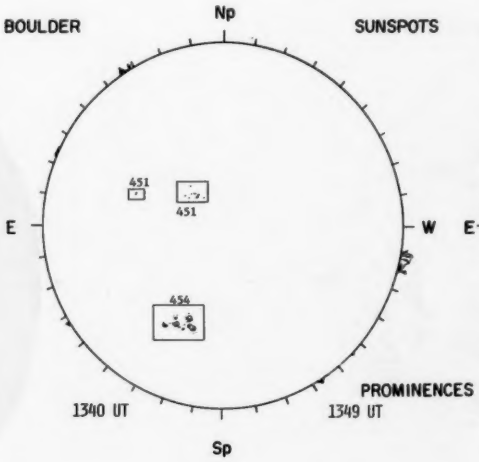
17.30-19.16 UT

09

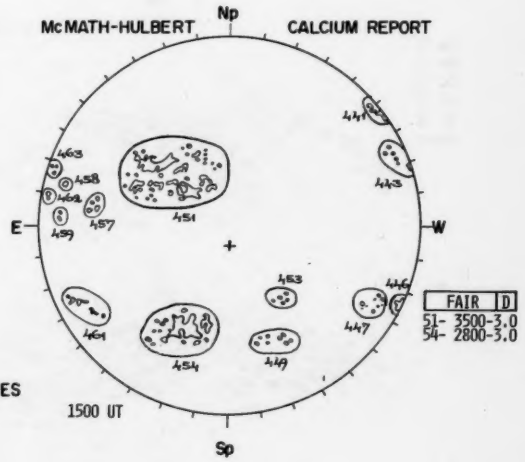
SACRAMENTO PEAK



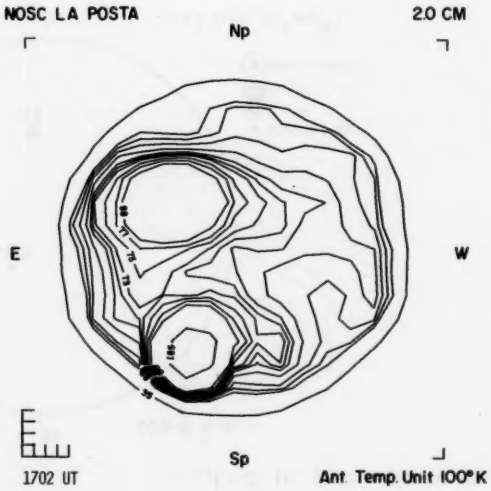
BOULDER



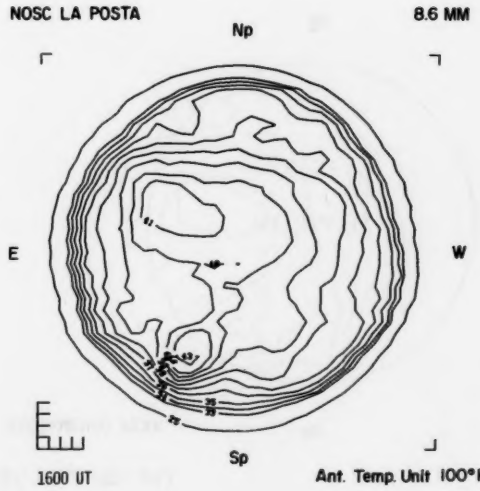
McMATH-HULBERT



NOSC LA POSTA

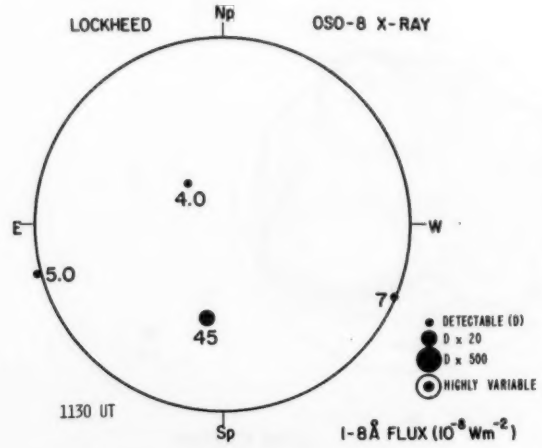


NOSC LA POSTA

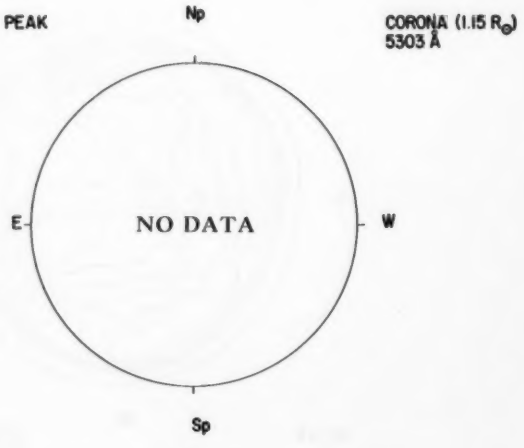


AUGUST 10, 1978 (P = 14.13, B_o = 6.37, L_o = 182.36)

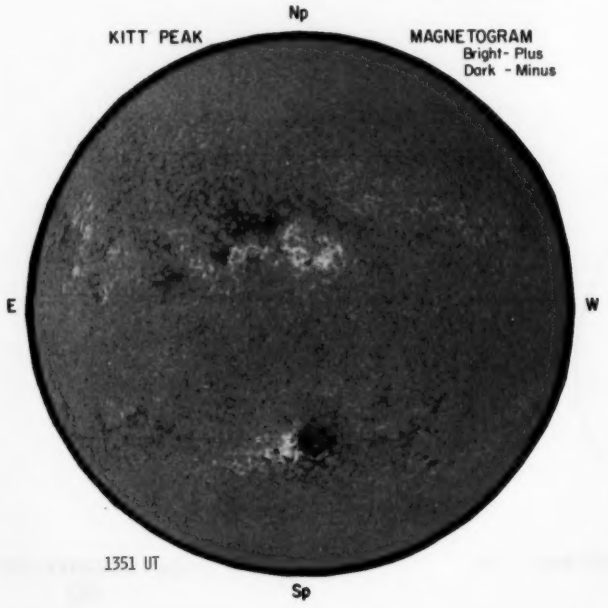
LOCKHEED OSO-8 X-RAY



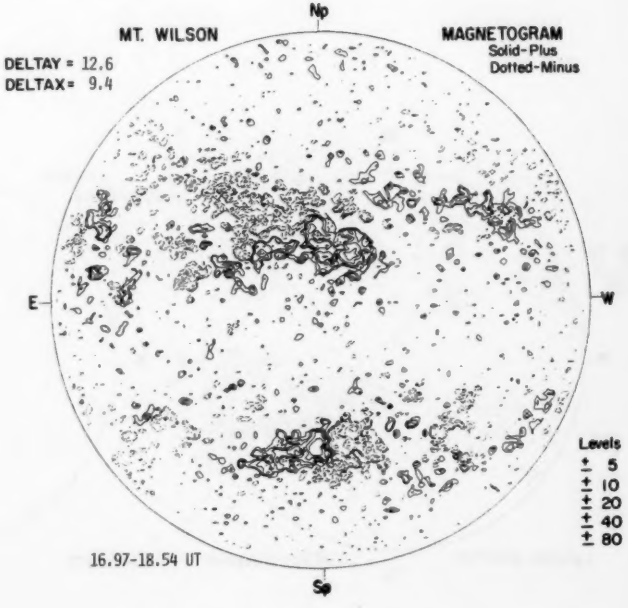
SACRAMENTO PEAK



KITT PEAK MAGNETOGRAM
Bright - Plus
Dark - Minus

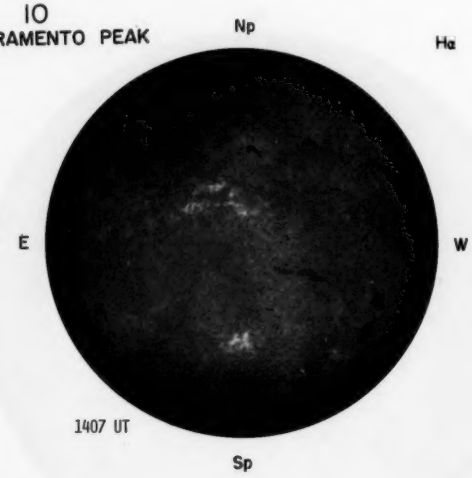


MT. WILSON MAGNETOGRAM
Solid - Plus
Dotted - Minus
DELTAY = 12.6
DELTAX = 9.4

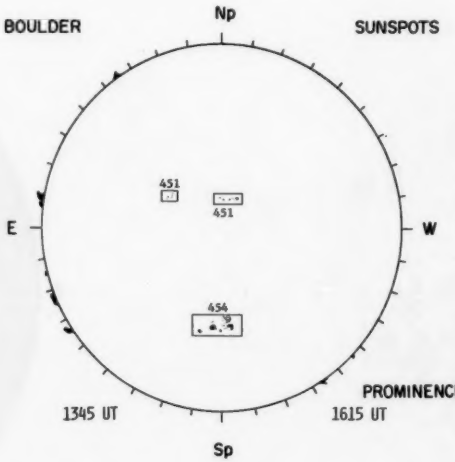


10

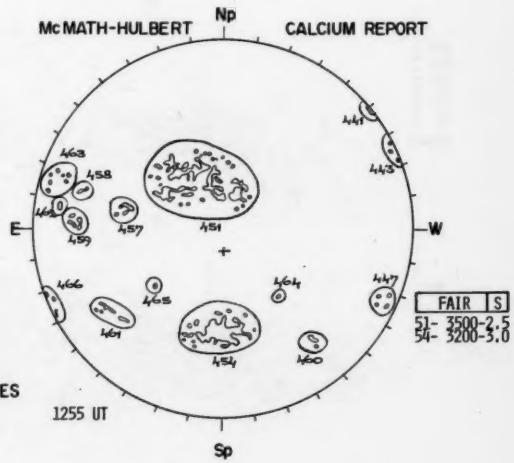
SACRAMENTO PEAK



BOULDER

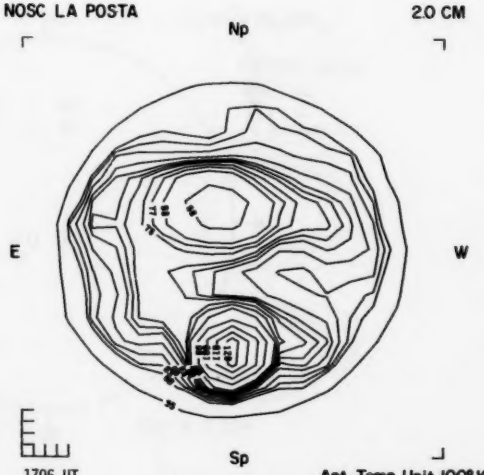


McMATH-HULBERT



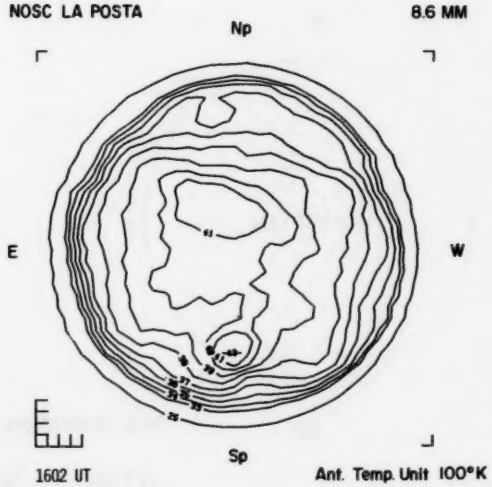
NOSC LA POSTA

2.0 CM



NOSC LA POSTA

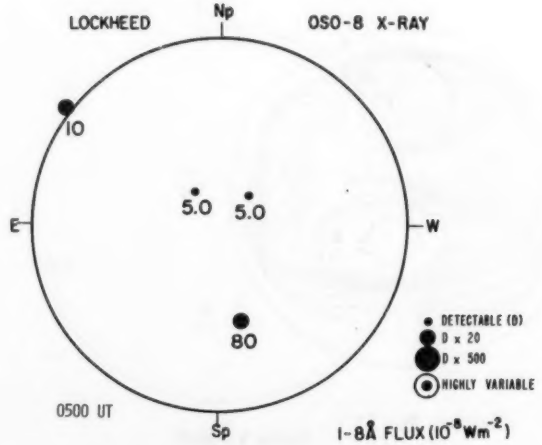
8.6 MM



67
Aug 78

AUGUST 11, 1978 (P = 14.50, B_o = 6.43, L_o = 169.14)

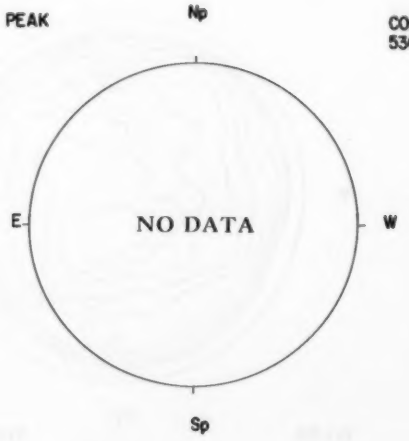
LOCKHEED OSO-8 X-RAY



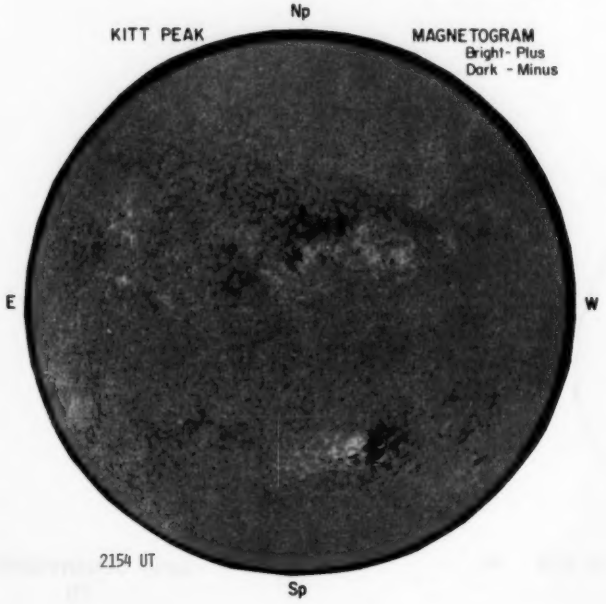
1-8Å FLUX (10^{-8} Wm^{-2})

SACRAMENTO PEAK

CORONA (1.15 $R_\odot$)
5303 Å

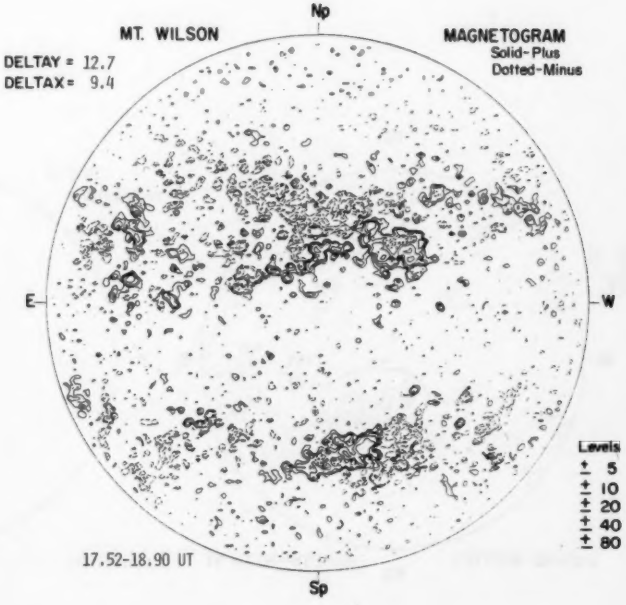


KITT PEAK MAGNETOGRAM
Bright - Plus
Dark - Minus

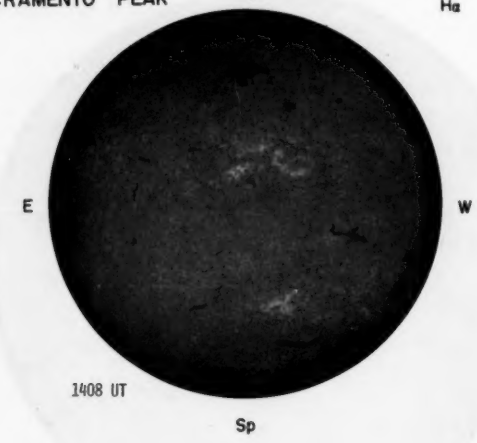


MT. WILSON MAGNETOGRAM
Solid - Plus
Dotted - Minus

DELTAY = 12.7
DELTAX = 9.4

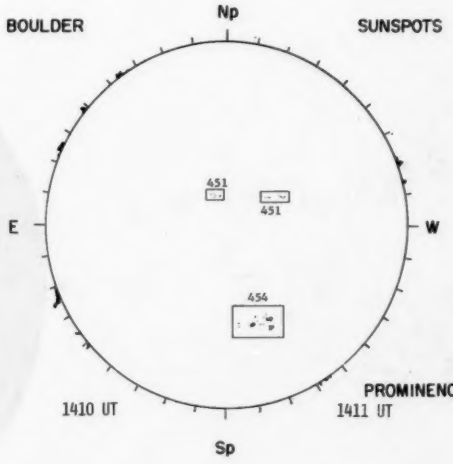


SACRAMENTO PEAK



1408 UT

Hα BOULDER



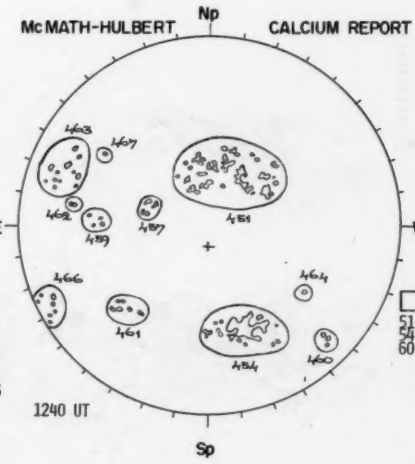
1410 UT

SUNSPOTS

PROMINENCES

1411 UT

McMATH-HULBERT

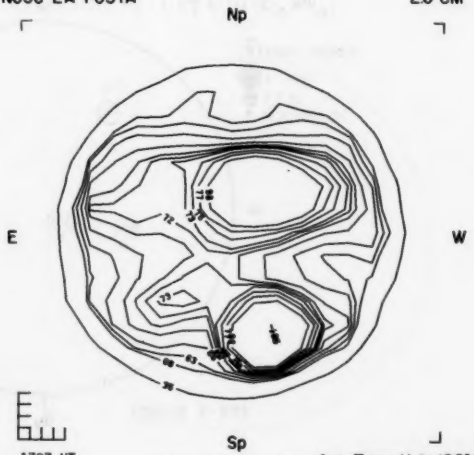


1240 UT

CALCIUM REPORT

FAIR	D
51- 3500-3.0	
54- 3000-3.0	
60- 0300-2.5	

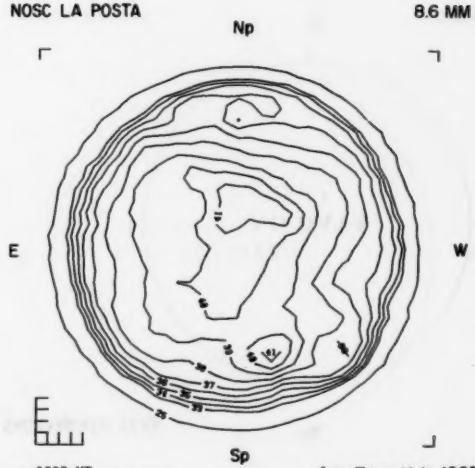
NOSC LA POSTA 2.0 CM



1707 UT

Ant. Temp. Unit 100°K

NOSC LA POSTA 8.6 MM



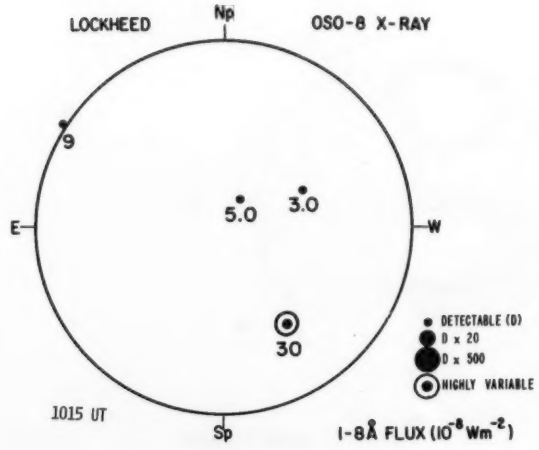
1608 UT

Ant. Temp. Unit 100°K

69
Aug 78

AUGUST 12, 1978 (P = 14.85, B_o = 6.48, L_o = 155.91)

LOCKHEED OSO-8 X-RAY

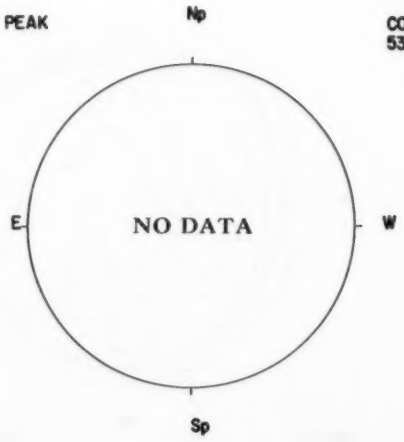


1015 UT

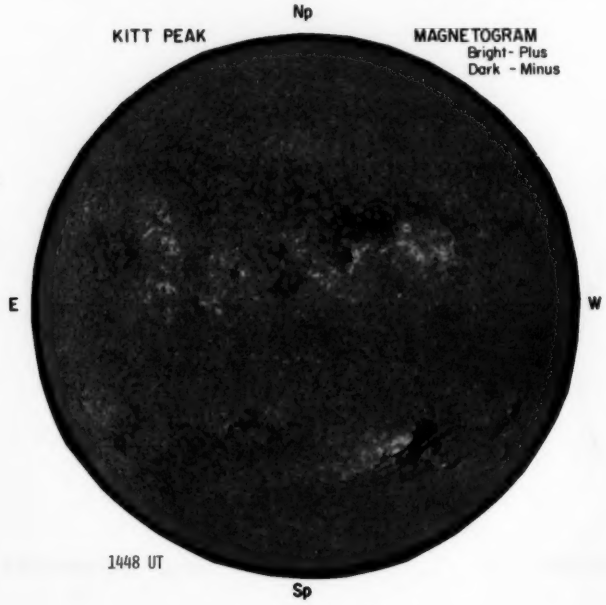
1-8Å FLUX (10^{-8} Wm^{-2})

SACRAMENTO PEAK

CORONA (1.15 $R_\odot$)
5303 Å



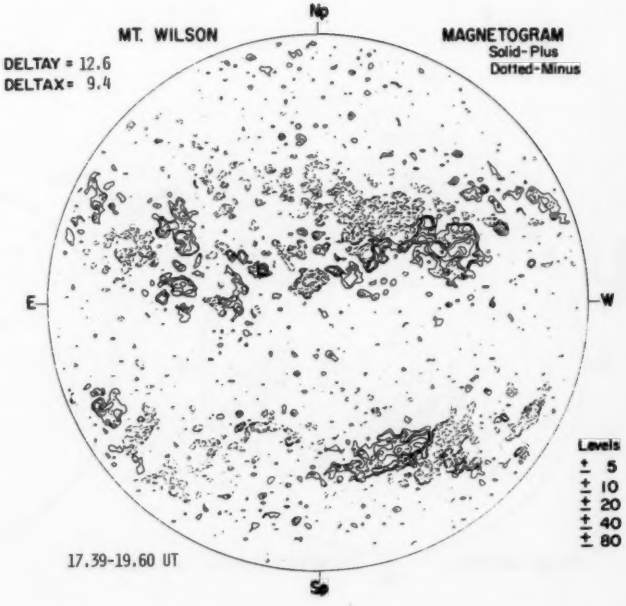
KITT PEAK MAGNETOGRAM
Bright - Plus
Dark - Minus



1448 UT

MT. WILSON MAGNETOGRAM
Solid - Plus
Dotted - Minus

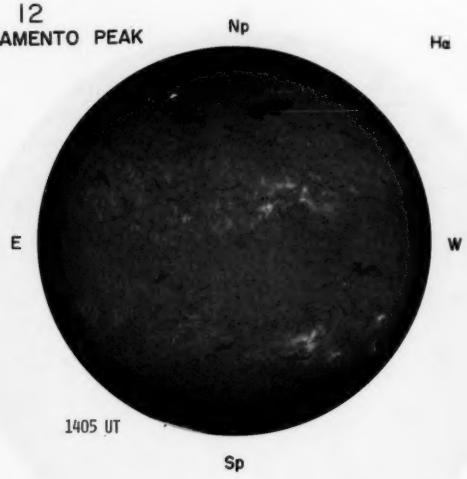
DELTAY = 12.6
DELTAX = 9.4



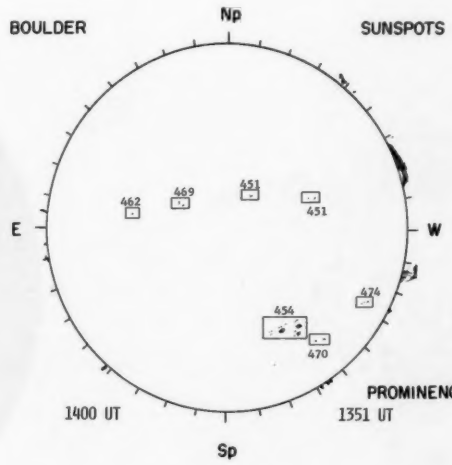
17.39-19.60 UT

12

SACRAMENTO PEAK



Hα BOULDER

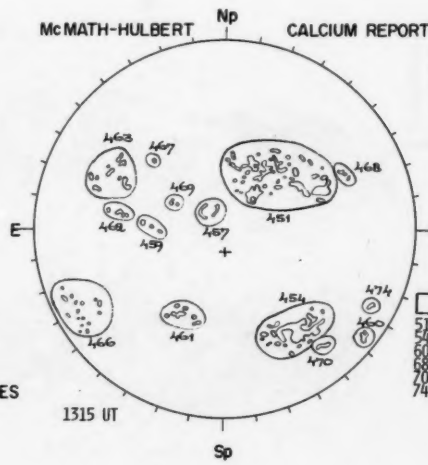


SUNSPOTS

PROMINENCES

1351 UT

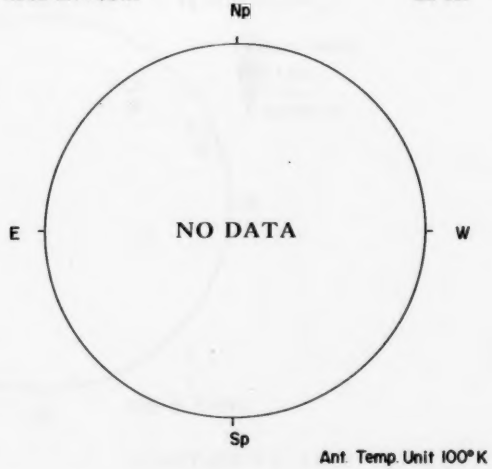
McMATH-HULBERT



CALCIUM REPORT

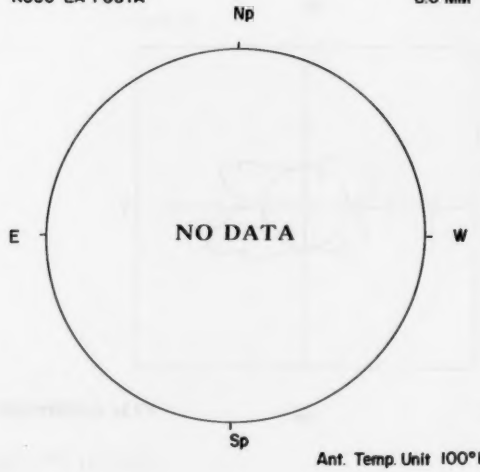
GOOD	S
51- 3800	2.5
54- 3000	3.0
60- 0400	2.5
68- 0300	2.5
70- 0300	3.0
74- 0300	3.5

NOSC LA POSTA 2.0 CM



Ant. Temp. Unit 100°K

NOSC LA POSTA 8.6 MM

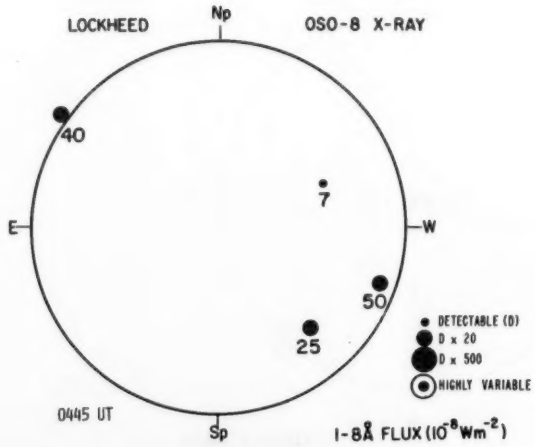


Ant. Temp. Unit 100°K

71
Aug 78

AUGUST 13, 1978 (P = 15.21, B_o = 6.54, L_o = 142.69)

LOCKHEED OSO-8 X-RAY

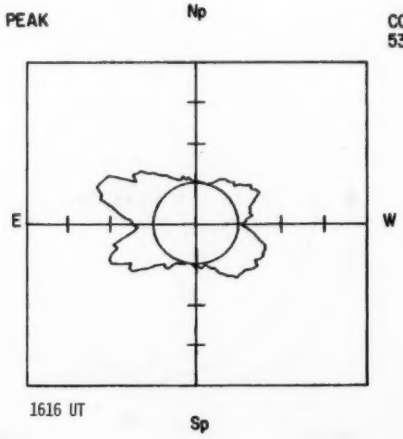


0445 UT

1-8Å FLUX (10^{-8} Wm^{-2})

SACRAMENTO PEAK

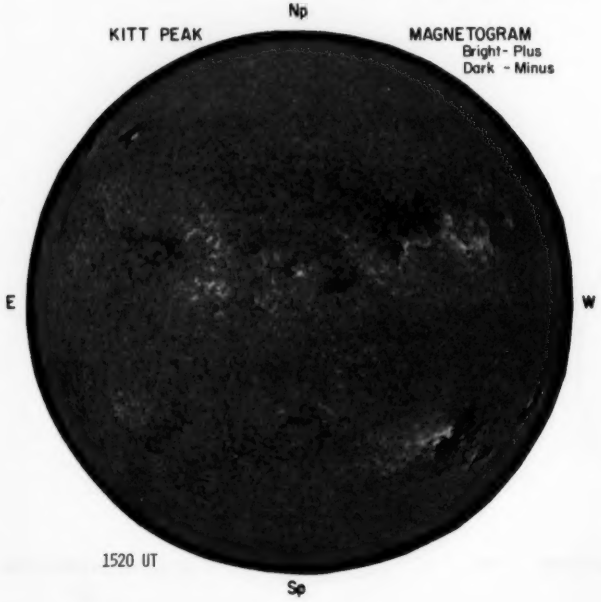
CORONA (1.15 $R_\odot$)
5303 Å



1616 UT

KITT PEAK

MAGNETOGRAM
Bright - Plus
Dark - Minus

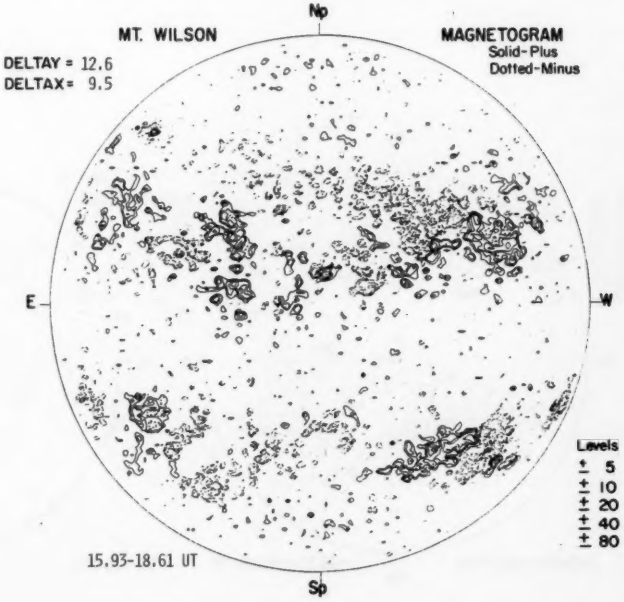


1520 UT

MT. WILSON

DELTAY = 12.6
DELTAX = 9.5

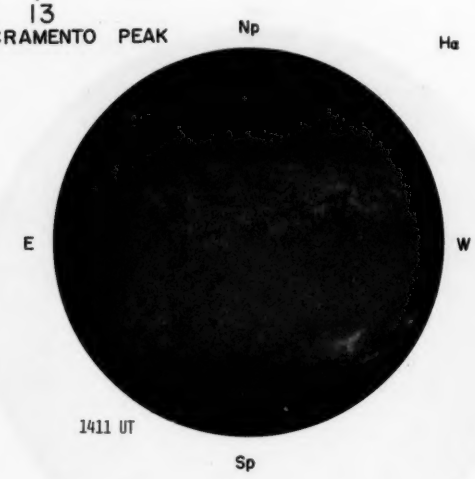
MAGNETOGRAM
Solid - Plus
Dotted - Minus



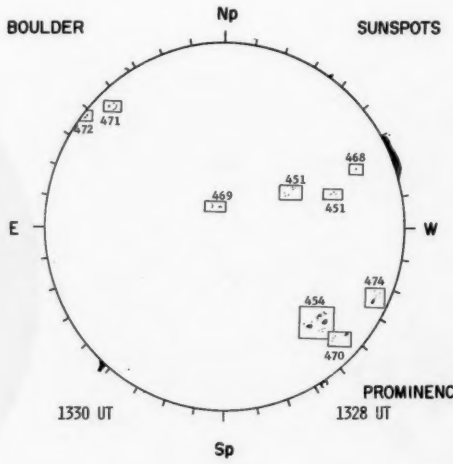
15.93-18.61 UT

13

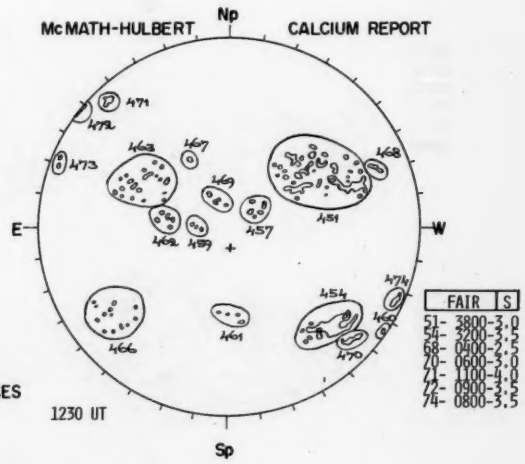
SACRAMENTO PEAK



Hα BOULDER



SUNSPOTS



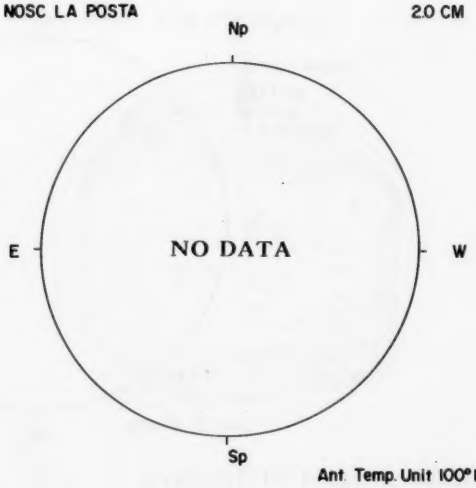
McMATH-HULBERT

CALCIUM REPORT

FAIR	S
51- 3800-3.0	
54- 3200-3.5	
68- 0400-2.5	
70- 0600-3.0	
71- 1100-4.0	
72- 0900-3.5	
74- 0800-3.5	

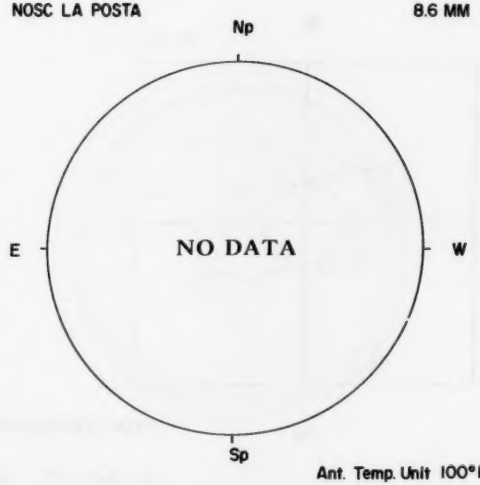
PROMINENCES 1328 UT

NOSC LA POSTA 2.0 CM



Ant. Temp. Unit 100°K

NOSC LA POSTA 8.6 MM

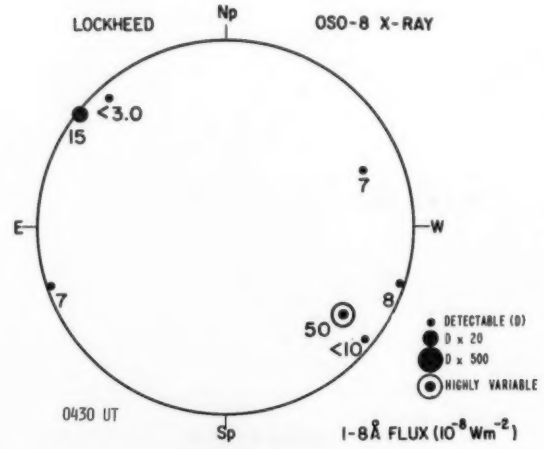


Ant. Temp. Unit 100°K

73
Aug 78

AUGUST 14, 1978 (P = 15.56, B_o = 6.59, L_o = 129.48)

LOCKHEED OSO-8 X-RAY



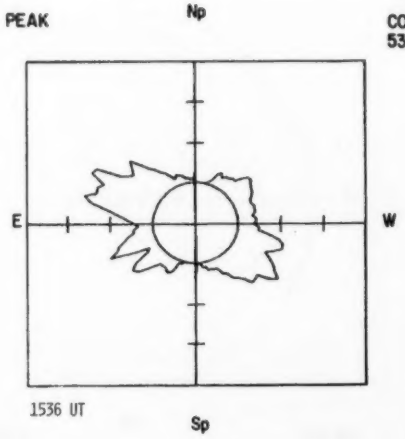
DETECTABLE (D)
D x 20
D x 500
HIGHLY VARIABLE

0430 UT

1-8Å FLUX (10^{-8} Wm^{-2})

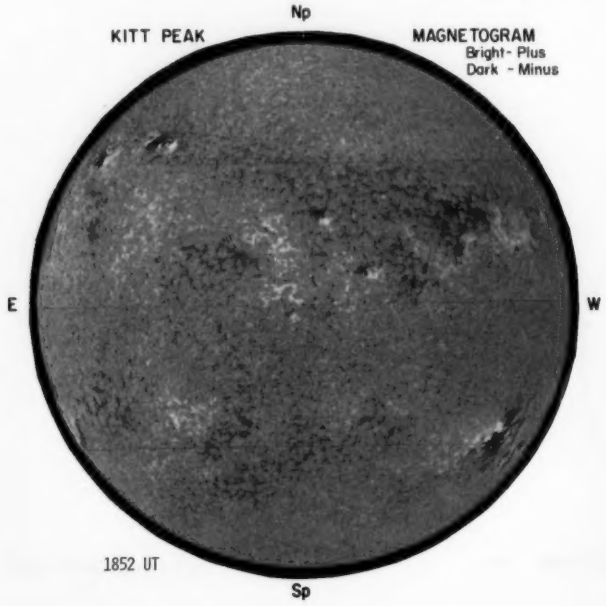
SACRAMENTO PEAK

CORONA (1.15 $R_\odot$)
5303 Å



1536 UT

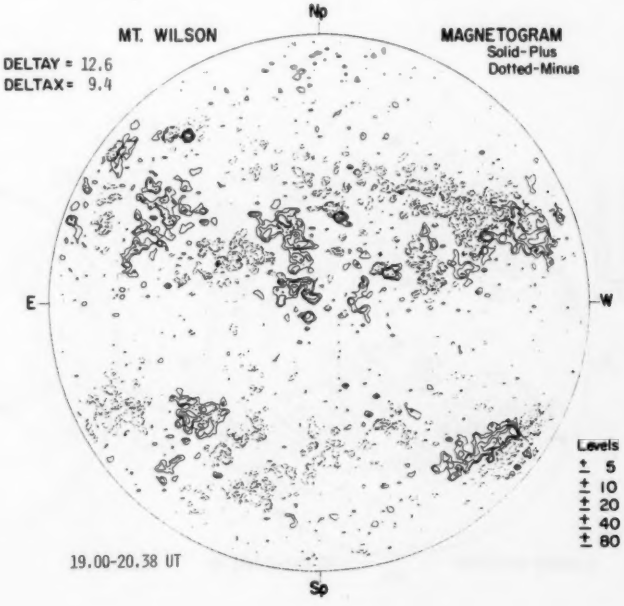
KITT PEAK MAGNETOGRAM
Bright - Plus
Dark - Minus



1852 UT

MT. WILSON MAGNETOGRAM
Solid - Plus
Dotted - Minus

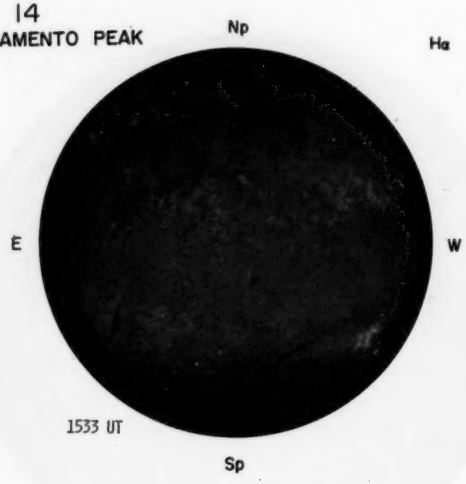
DELTAY = 12.6
DELTAX = 9.4



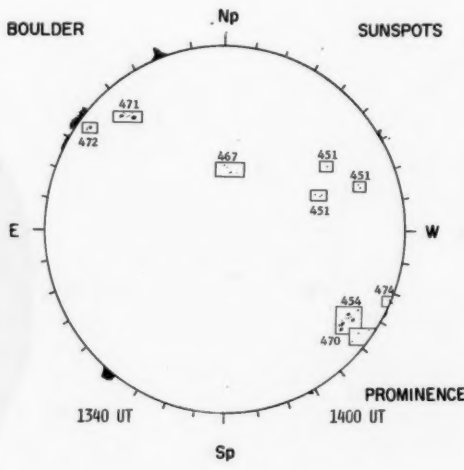
19.00-20.38 UT

14

SACRAMENTO PEAK



Hα BOULDER

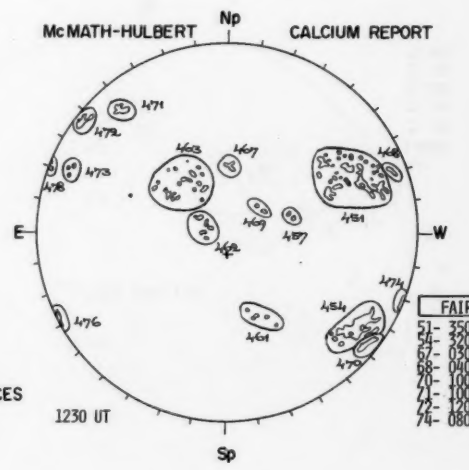


SUNSPOTS

PROMINENCES

1400 UT

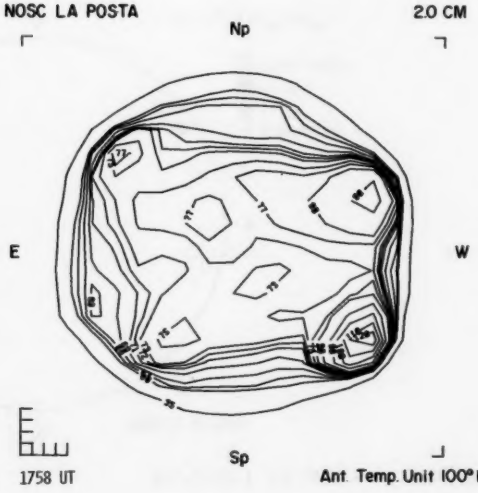
McMATH-HULBERT



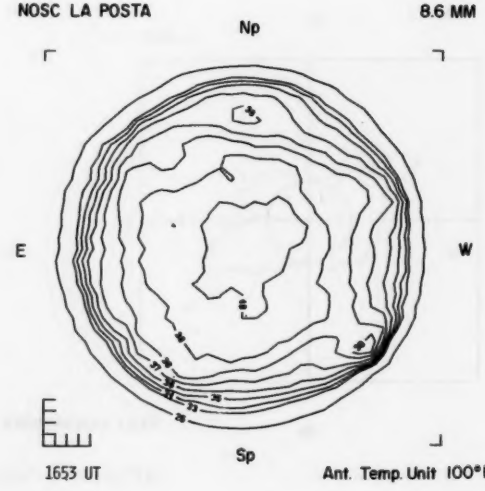
CALCIUM REPORT

FAIR	D
51- 3500	3.0
54- 3200	3.5
67- 0300	2.5
68- 0400	2.5
70- 1000	3.5
71- 1000	3.5
72- 1200	4.0
74- 0800	3.0

NOSC LA POSTA 2.0 CM



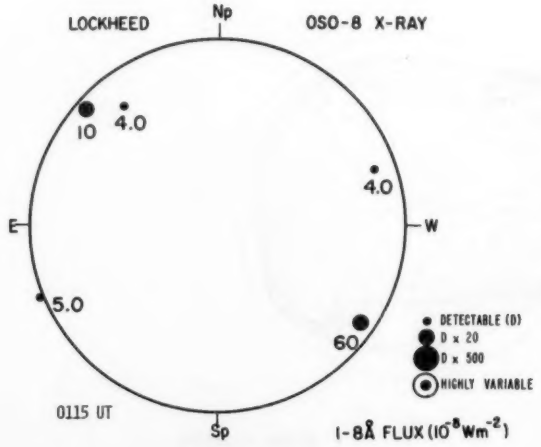
NOSC LA POSTA 8.6 MM



75
Aug 78

AUGUST 15, 1978 (P = 15.90, B_o = 6.64, L_o = 116.26)

LOCKHEED OSO-8 X-RAY



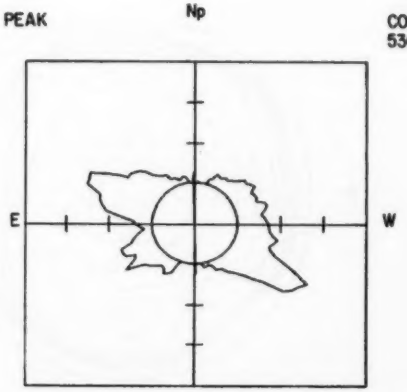
DETECTABLE (D)
D x 20
D x 500
HIGHLY VARIABLE

0115 UT

1-8Å FLUX (10^{-8} Wm^{-2})

SACRAMENTO PEAK

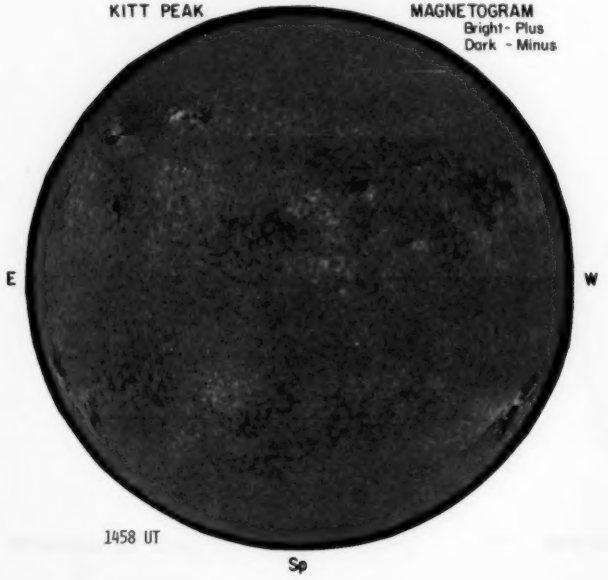
CORONA (1.15 $R_\odot$)
5303 Å



1728 UT

KITT PEAK

MAGNETOGRAM
Bright - Plus
Dark - Minus

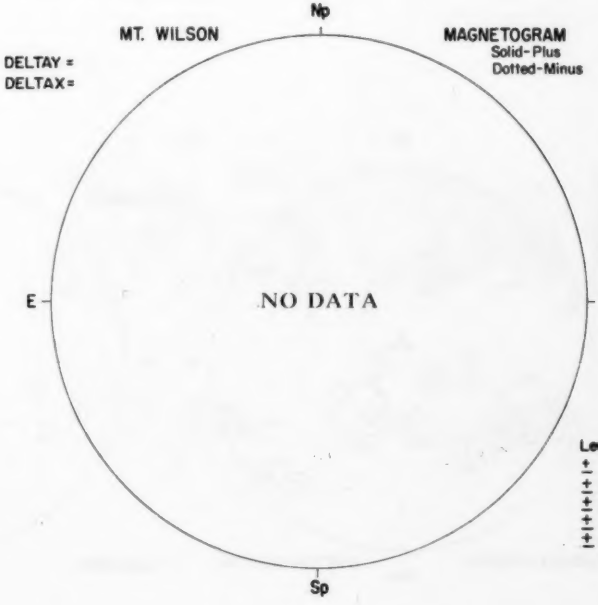


1458 UT

MT. WILSON

DELTAY =
DELTAX=

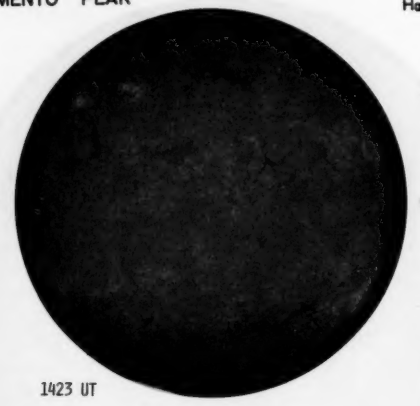
MAGNETOGRAM
Solid - Plus
Dotted - Minus



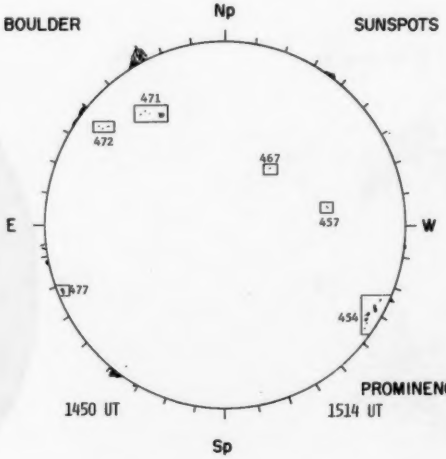
Levels
± 5
± 10
± 20
± 40
± 80

15

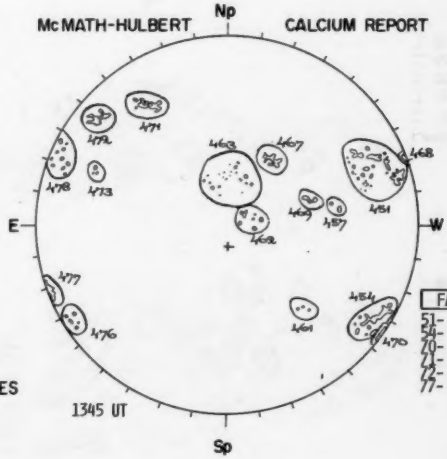
SACRAMENTO PEAK



Hα BOULDER



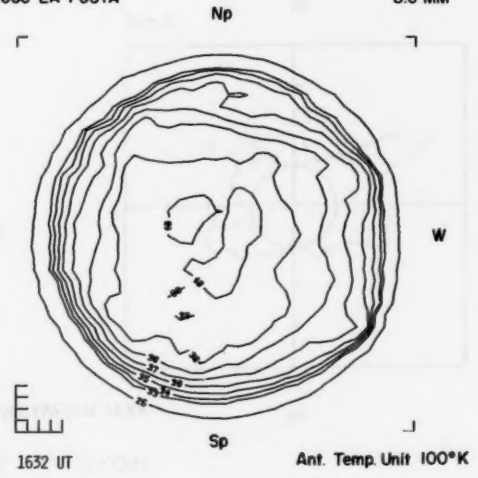
SUNSPOTS



McMATH-HULBERT CALCIUM REPORT

NOSC LA POSTA 2.0 CM

NOSC LA POSTA 8.6 MM

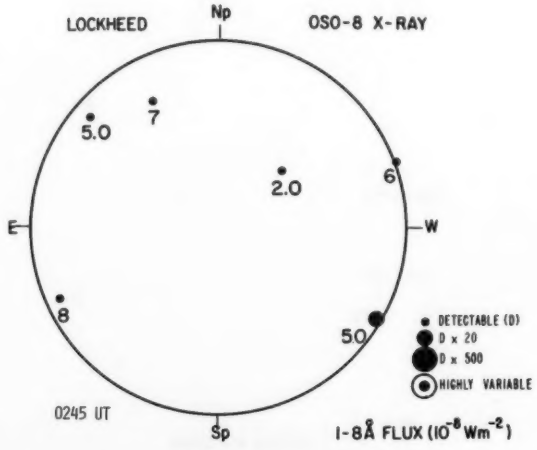


77 Aug 78

AUGUST 16, 1978 (P = 16.24, B_o = 6.69, L_o = 103.04)

LOCKHEED

OSO-8 X-RAY

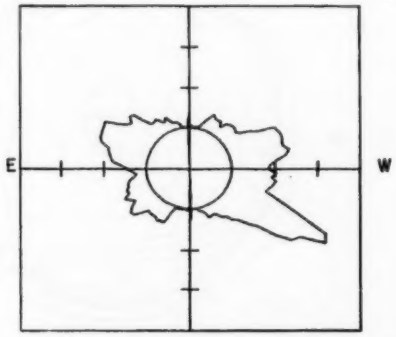


0245 UT

I-8Å FLUX (10^{-8} Wm^{-2})

SACRAMENTO PEAK

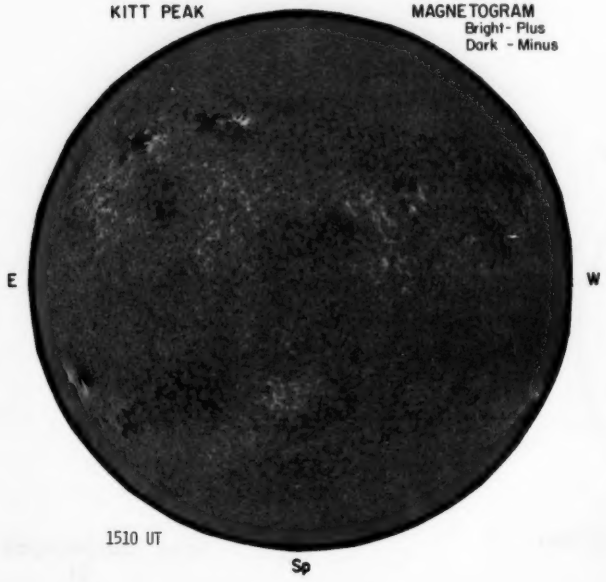
CORONA (1.15 $R_\odot$)
5303 Å



1654 UT

KITT PEAK

MAGNETOGRAM
Bright - Plus
Dark - Minus

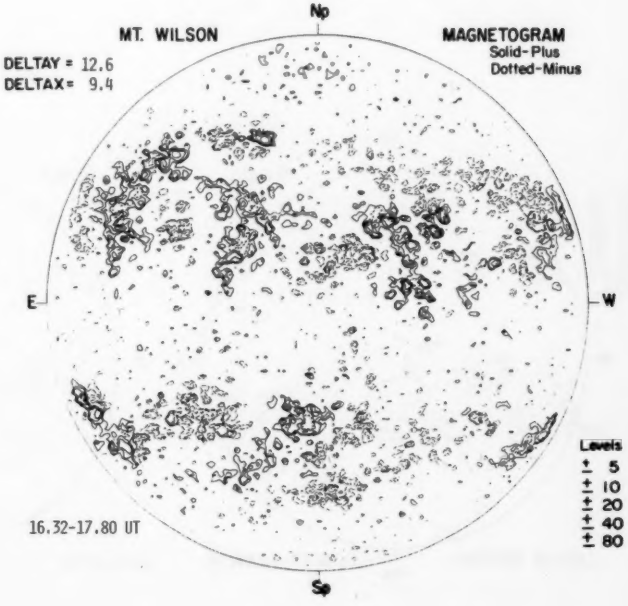


1510 UT

MT. WILSON

MAGNETOGRAM
Solid - Plus
Dotted - Minus

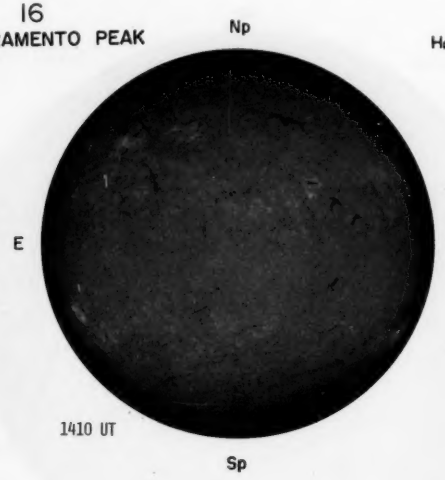
DELTAY = 12.6
DELTAX = 9.4



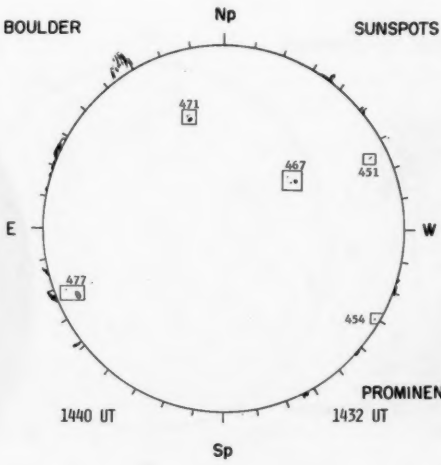
16.32-17.80 UT

16

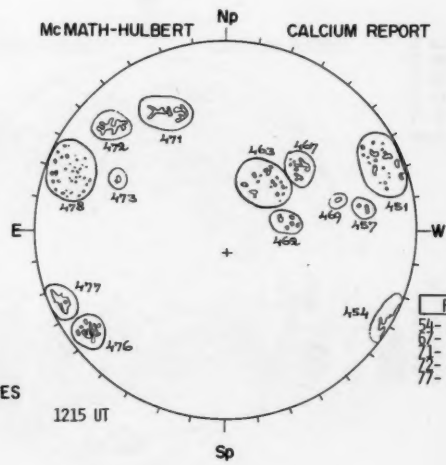
SACRAMENTO PEAK



Hα BOULDER



SUNSPOTS

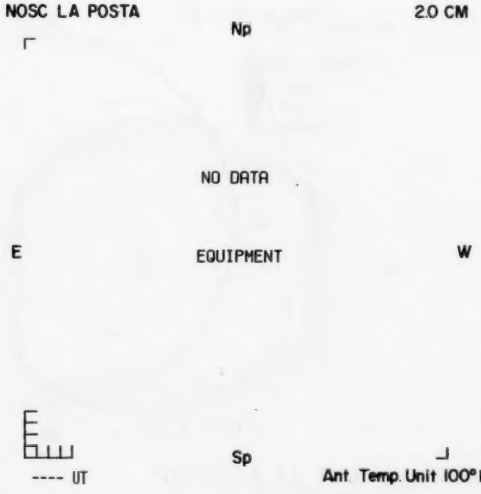


McMATH-HULBERT

CALCIUM REPORT

FAIR	S
54- 3500-3.0	
67- 0400-2.5	
21- 1000-3.0	
22- 1000-3.0	
77- 1800-3.0	

NOSC LA POSTA



2.0 CM

Ant. Temp. Unit 100°K

NOSC LA POSTA

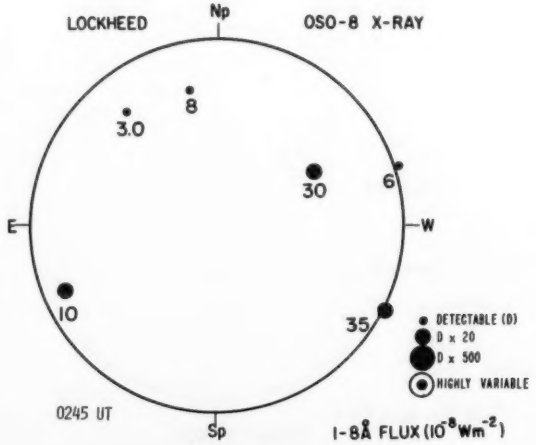
8.6 MM

Ant. Temp. Unit 100°K

79
Aug 78

AUGUST 17, 1978 (P = 16.58, B_o = 6.73, L_o = 89.82)

LOCKHEED OSO-8 X-RAY

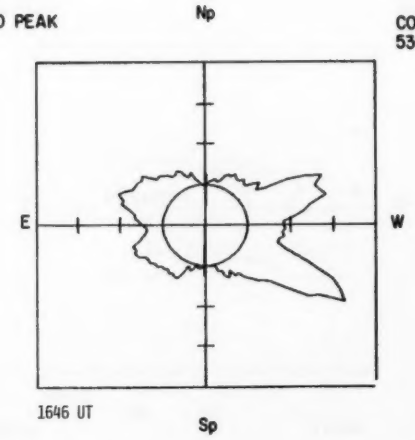


0245 UT

I-8Å FLUX (10^{-8} Wm^{-2})

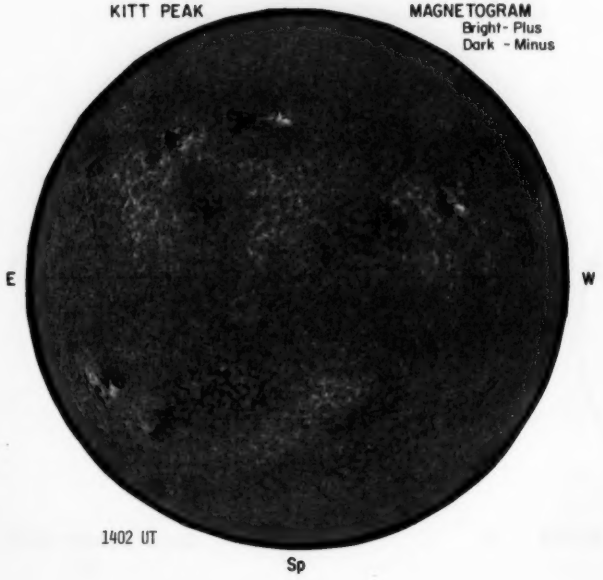
SACRAMENTO PEAK

CORONA (1.15 $R_\odot$)
5303 Å



1646 UT

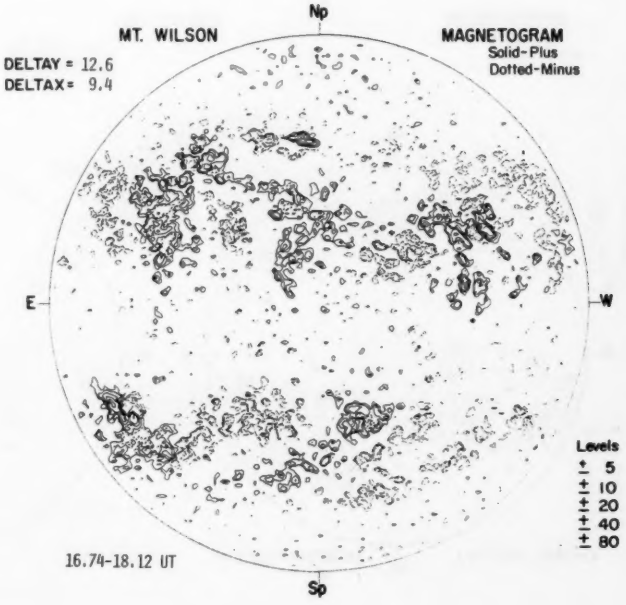
KITT PEAK MAGNETOGRAM
Bright - Plus
Dark - Minus



1402 UT

MT. WILSON MAGNETOGRAM
Solid - Plus
Dotted - Minus

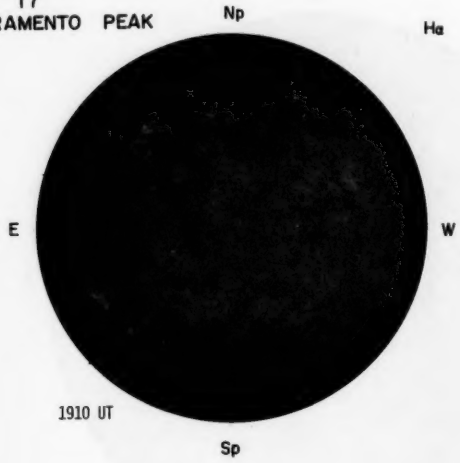
DELTAY = 12.6
DELTAX = 9.4



16.74-18.12 UT

17

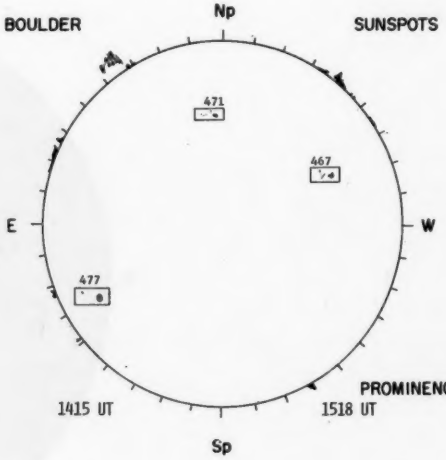
SACRAMENTO PEAK



1910 UT

Ha

BOULDER

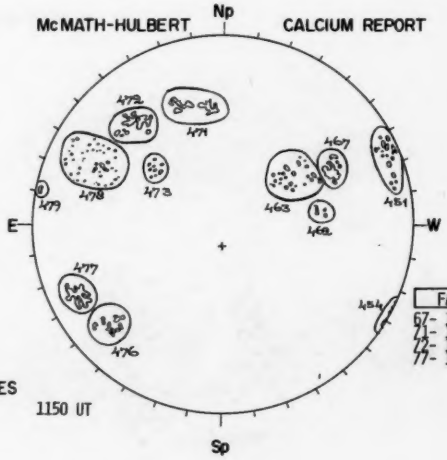


1415 UT

SUNSPOTS

1518 UT

McMATH-HULBERT



1150 UT

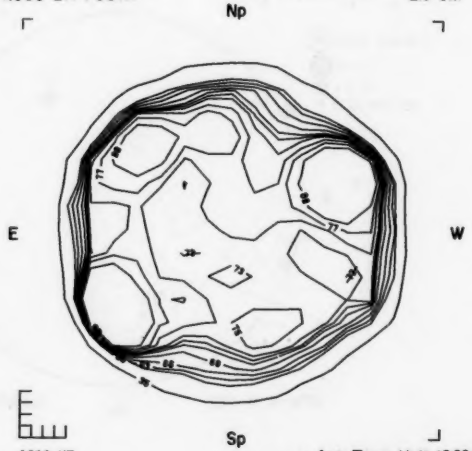
CALCIUM REPORT

FAIR	S
67- 1000	3.0
71- 1000	2.5
72- 1200	2.5
77- 1700	3.0

PROMINENCES

NOSC LA POSTA

2.0 CM

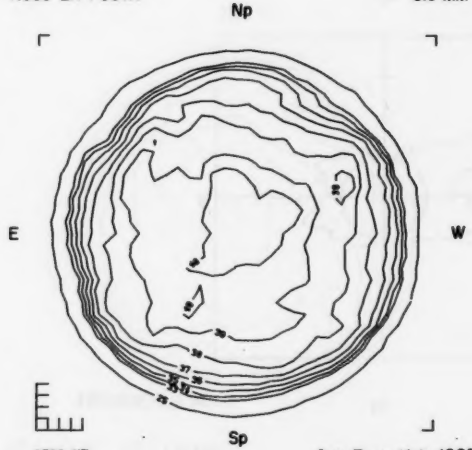


1816 UT

Ant. Temp. Unit 100°K

NOSC LA POSTA

8.6 MM



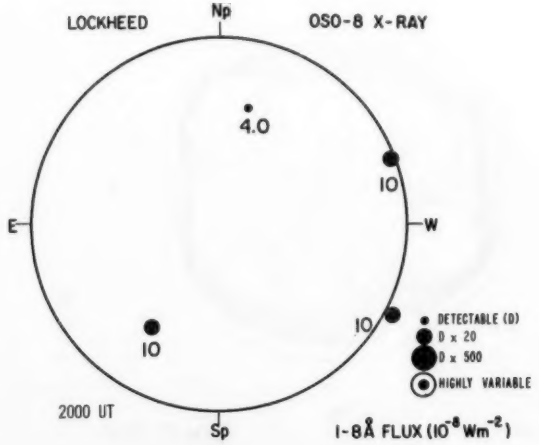
1718 UT

Ant. Temp. Unit 100°K

81
Aug 78

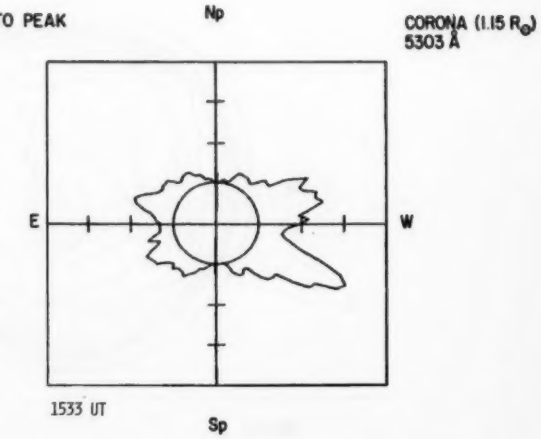
AUGUST 18, 1978 (P = 16.91, B_o = 6.78, L_o = 76.60)

LOCKHEED OSO-8 X-RAY

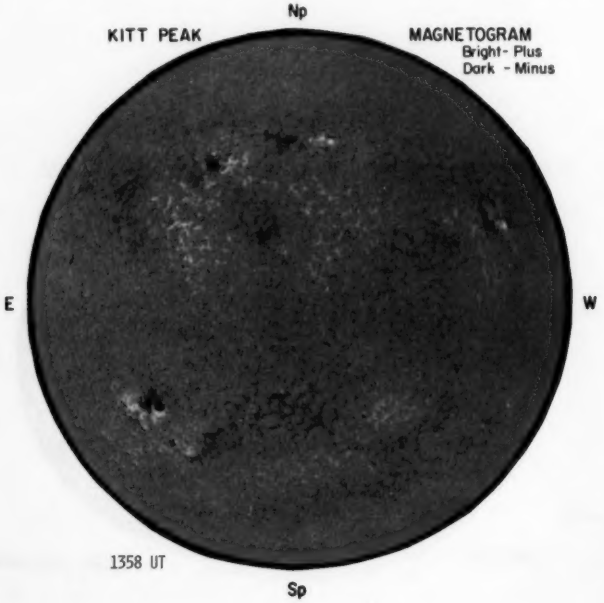


1-8Å FLUX (10^{-8} Wm^{-2})

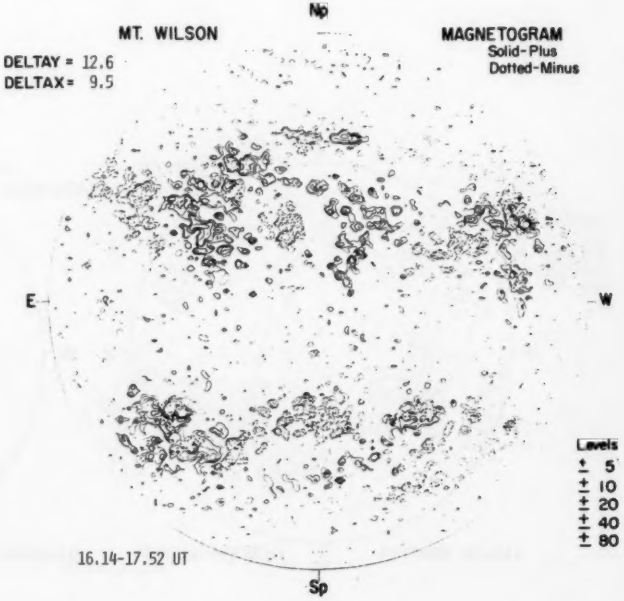
SACRAMENTO PEAK



KITT PEAK MAGNETOGRAM
Bright - Plus
Dark - Minus

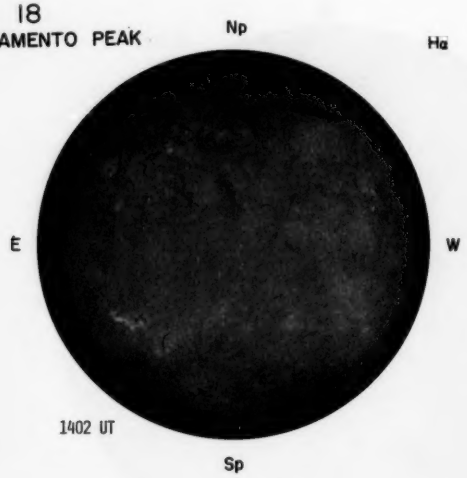


MT. WILSON MAGNETOGRAM
Solid - Plus
Dotted - Minus
DELTAY = 12.6
DELTAX = 9.5



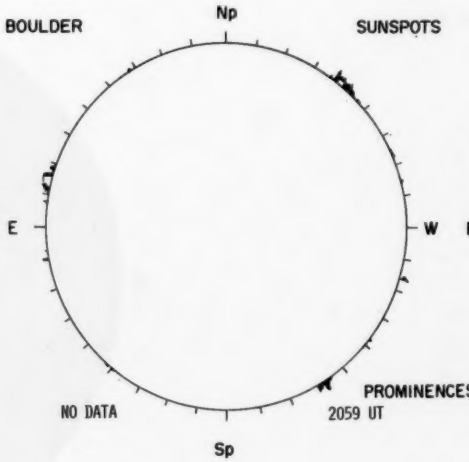
18

ACRAMENTO PEAK



1402 UT

Hα BOULDER

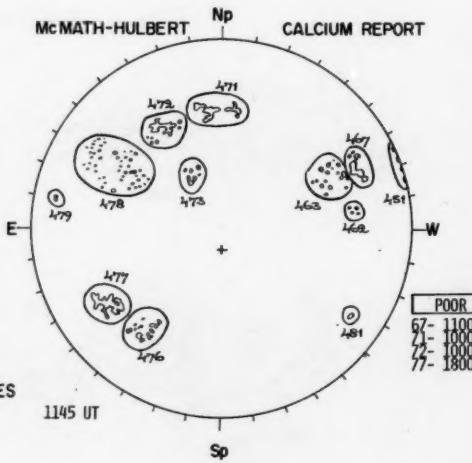


NO DATA

SUNSPOTS

2059 UT

McMATH-HULBERT

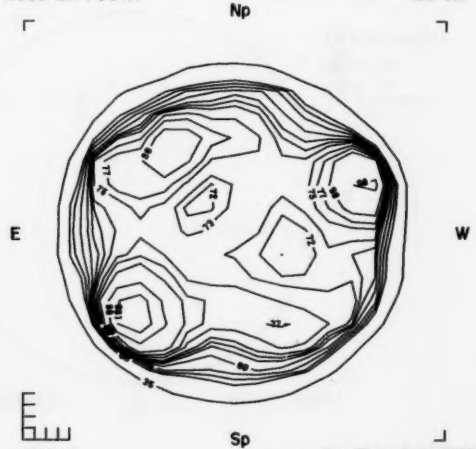


1145 UT

CALCIUM REPORT

POOR	D
67- 1100-2.5	
71- 1000-2.5	
72- 1000-2.5	
77- 1800-3.0	

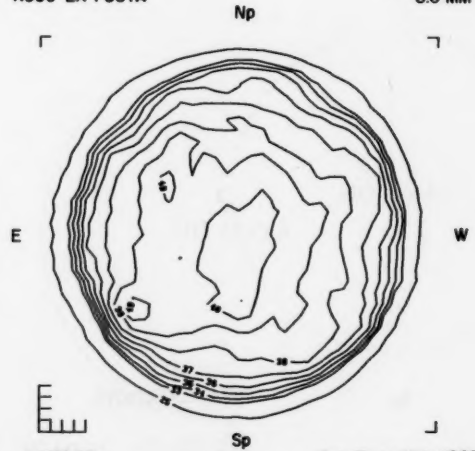
NOSC LA POSTA 2.0 CM



1800 UT

Ant. Temp. Unit 100°K

NOSC LA POSTA 8.6 MM

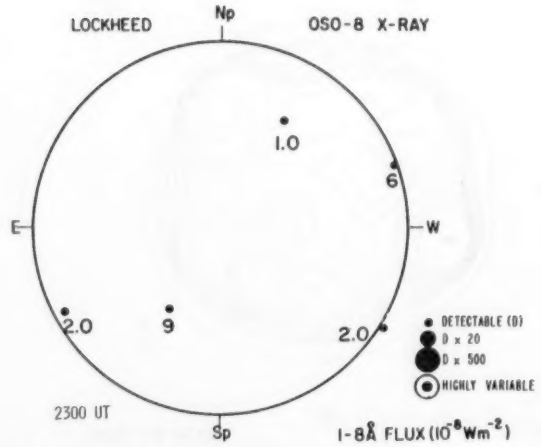


1659 UT

Ant. Temp. Unit 100°K

AUGUST 19, 1978 (P = 17.23, B_o = 6.82, L_o = 63.39)

LOCKHEED OSO-8 X-RAY

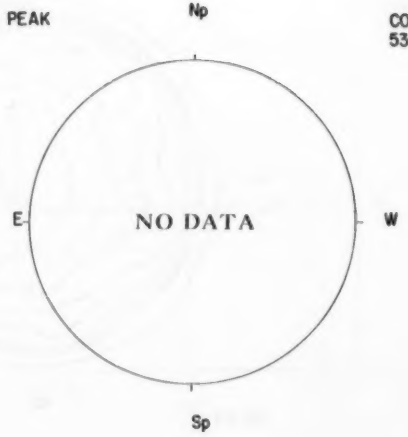


2300 UT

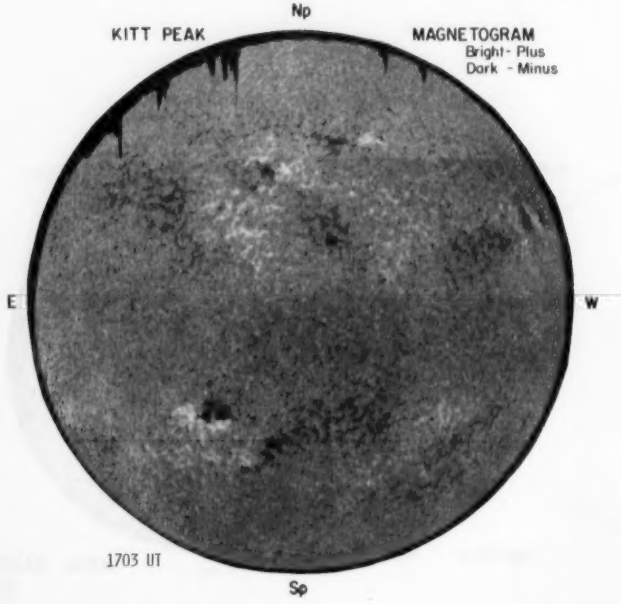
1-8Å FLUX (10^{-8} Wm^{-2})

SACRAMENTO PEAK

CORONA (1.15 $R_\odot$)
5303 Å



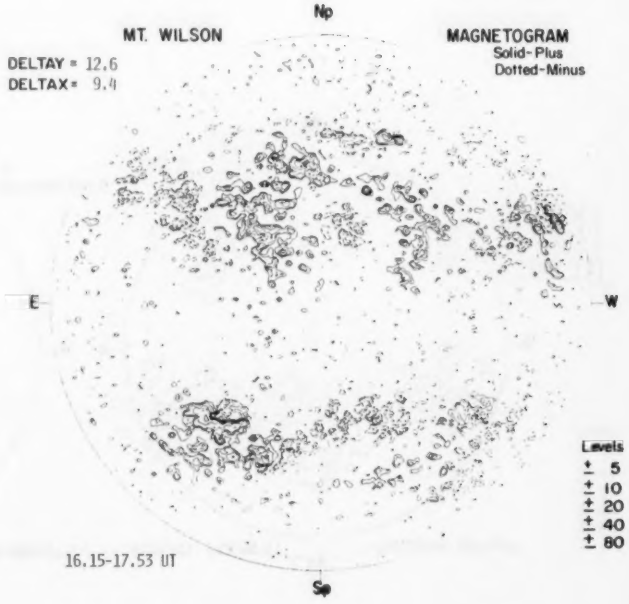
KITT PEAK MAGNETOGRAM
Bright - Plus
Dark - Minus



1703 UT

MT. WILSON MAGNETOGRAM
Solid - Plus
Dotted - Minus

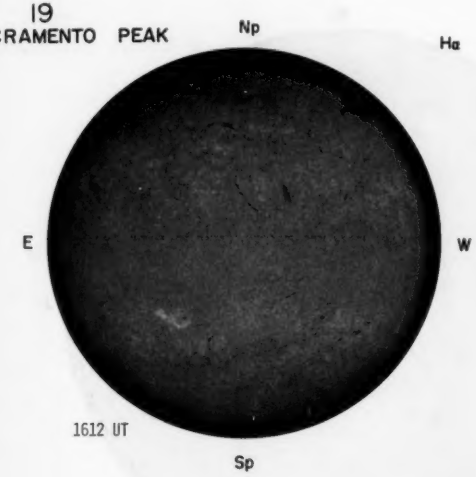
DELTAY = 12.6
DELTAX = 9.4



16.15-17.53 UT

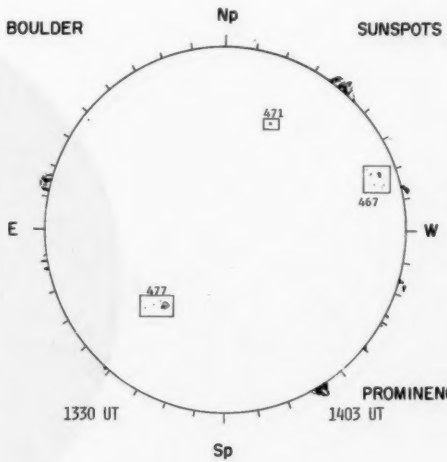
19

SACRAMENTO PEAK



1612 UT

Hα BOULDER



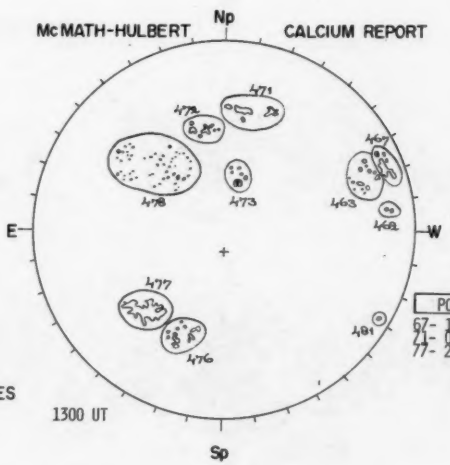
1330 UT

SUNSPOTS

PROMINENCES

1403 UT

McMATH-HULBERT

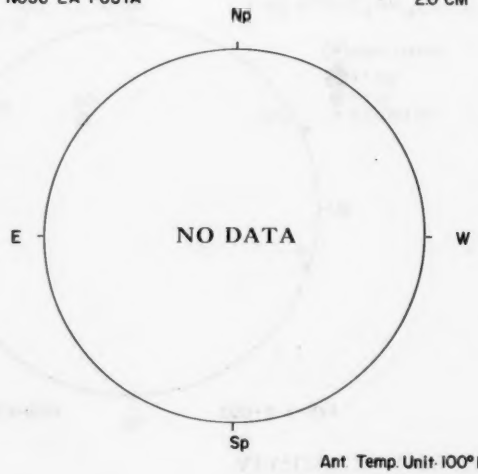


1300 UT

CALCIUM REPORT

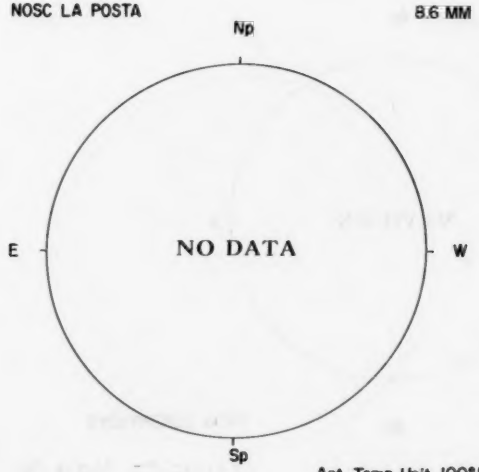
	POOR	M
67- 1200-2.5		
71- 0900-2.5		
77- 2000-3.0		

NOSC LA POSTA 2.0 CM



Ant. Temp. Unit 100°K

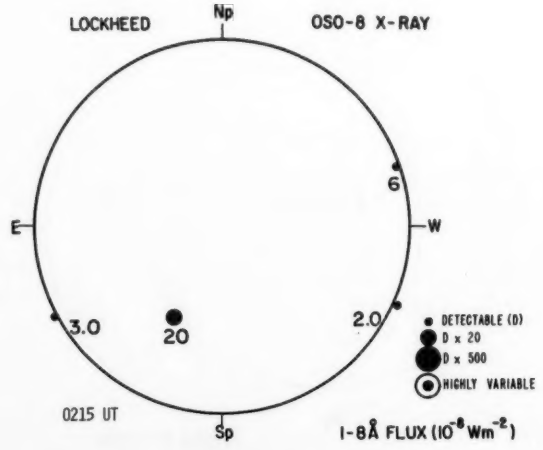
NOSC LA POSTA 8.6 MM



Ant. Temp. Unit 100°K

AUGUST 20, 1978 (P = 17.55, B_o = 6.86, L_o = 50.17)

LOCKHEED OSO-8 X-RAY

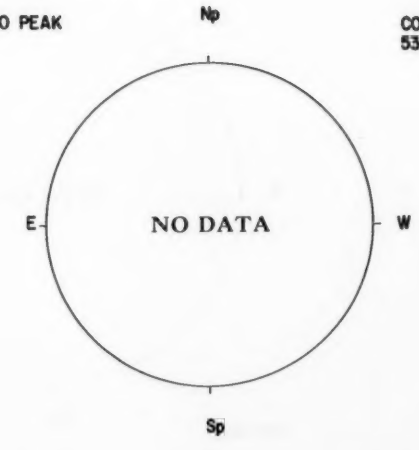


0215 UT

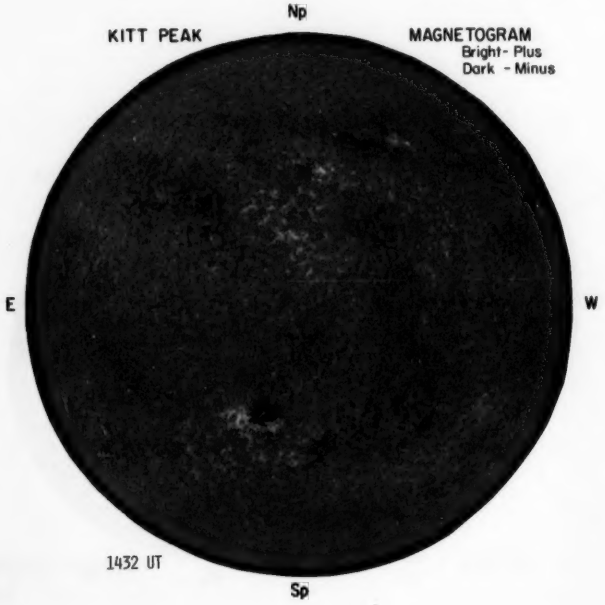
I-8Å FLUX (10^{-8} Wm^{-2})

SACRAMENTO PEAK

CORONA (1.15 $R_\odot$)
5303 Å



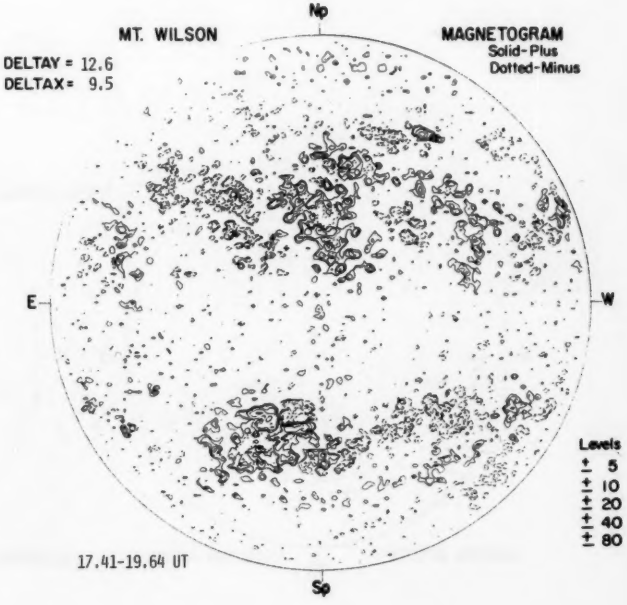
KITT PEAK MAGNETOGRAM
Bright- Plus
Dark - Minus



1432 UT

MT. WILSON MAGNETOGRAM
Solid-Plus
Dotted-Minus

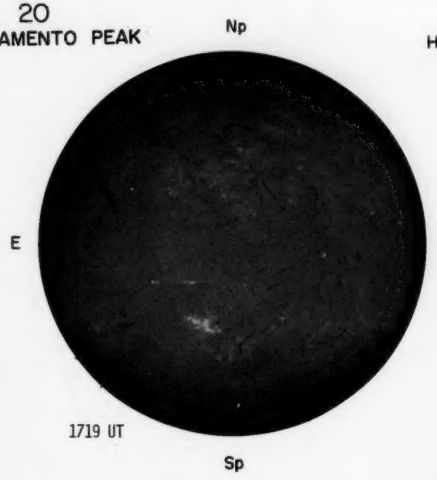
DELTAY = 12.6
DELTAX = 9.5



17.41-19.64 UT

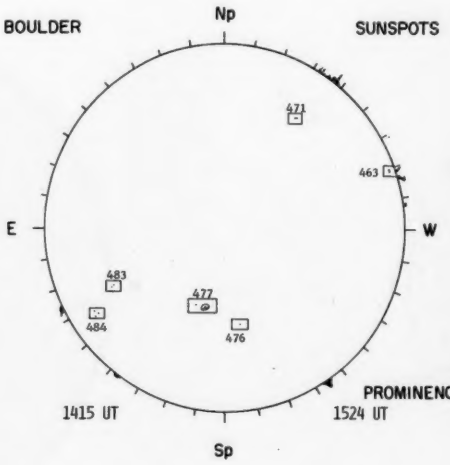
20

SACRAMENTO PEAK



1719 UT

Hα BOULDER SUNSPOTS

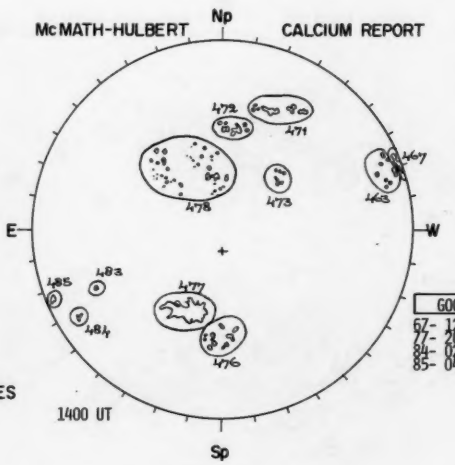


1415 UT

PROMINENCES

1524 UT

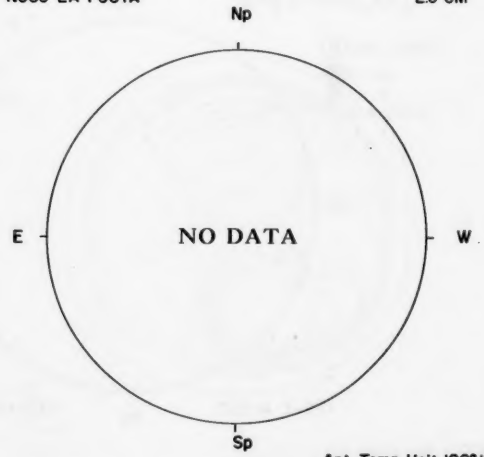
McMATH-HULBERT CALCIUM REPORT



1400 UT

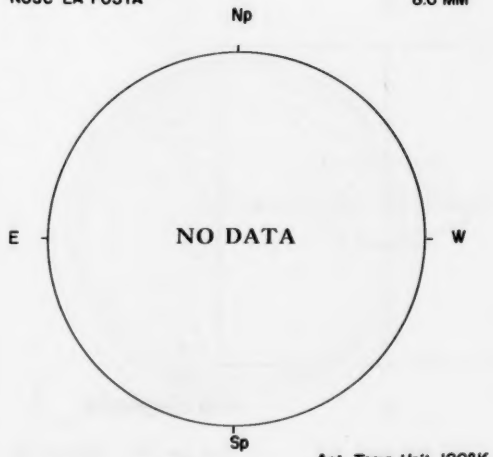
GOOD	M
67- 1200-2.5	
77- 2000-2.5	
84- 0200-2.5	
85- 0400-2.5	

NOSC LA POSTA 2.0 CM



Ant. Temp. Unit 100° K

NOSC LA POSTA 8.6 MM

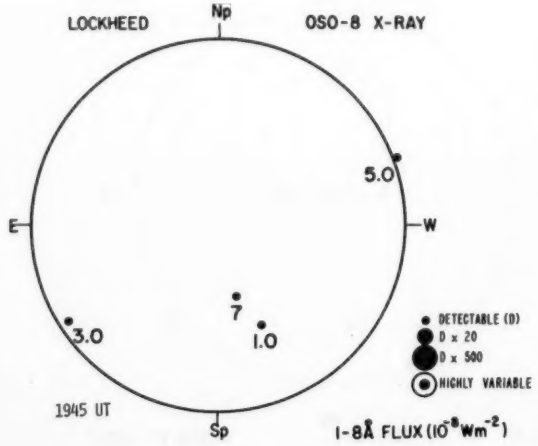


Ant. Temp. Unit 100° K

87
Aug 78

AUGUST 21, 1978 (P = 17.87, B_o = 6.90, L_o = 36.95)

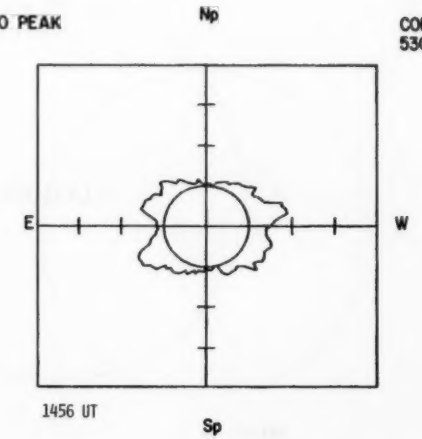
LOCKHEED OSO-8 X-RAY



1945 UT

1-8Å FLUX (10^{-8} Wm^{-2})

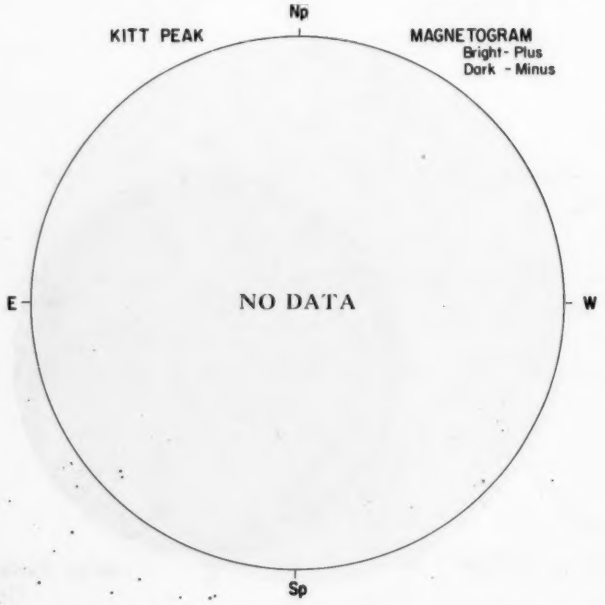
SACRAMENTO PEAK



CORONA (1.15 $R_\odot$)
5303 Å

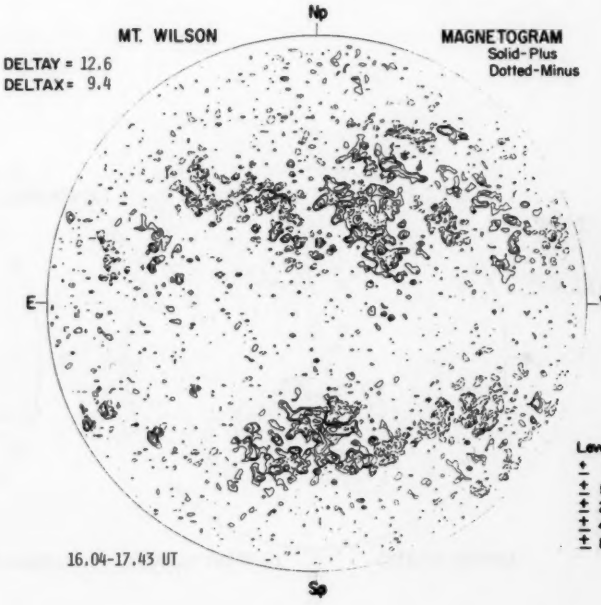
1456 UT

KITT PEAK MAGNETOGRAM
Bright - Plus
Dark - Minus



MT. WILSON MAGNETOGRAM
Solid - Plus
Dotted - Minus

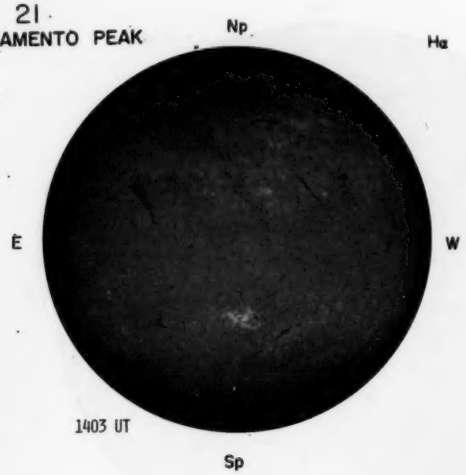
DELTAY = 12.6
DELTAX = 9.4



16.04-17.43 UT

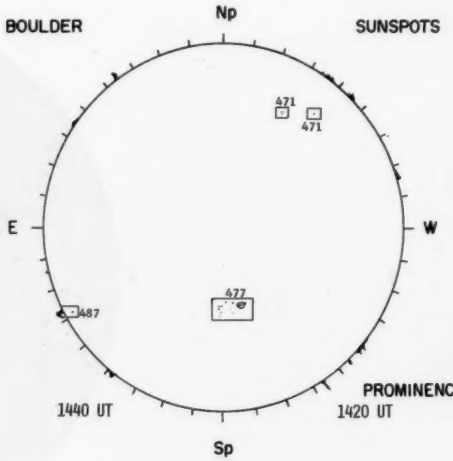
21

SACRAMENTO PEAK



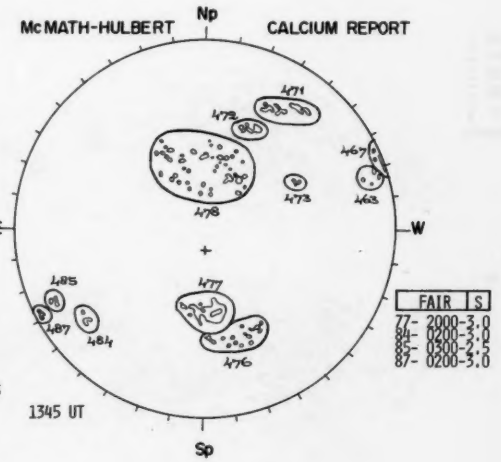
1403 UT

BOULDER SUNSPOTS



1440 UT

McMATH-HULBERT CALCIUM REPORT



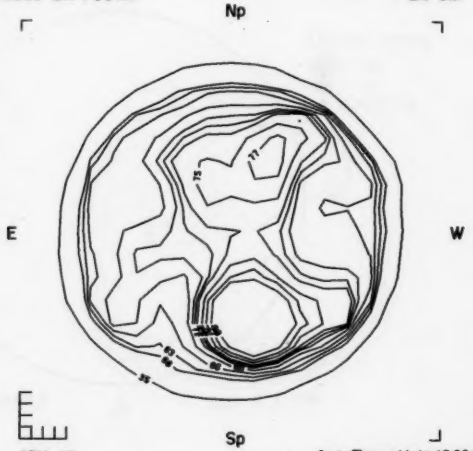
FAIR	S
77- 2000-3.0	
84- 0200-3.0	
85- 0300-2.5	
87- 0200-3.0	

1345 UT

PROMINENCES

1420 UT

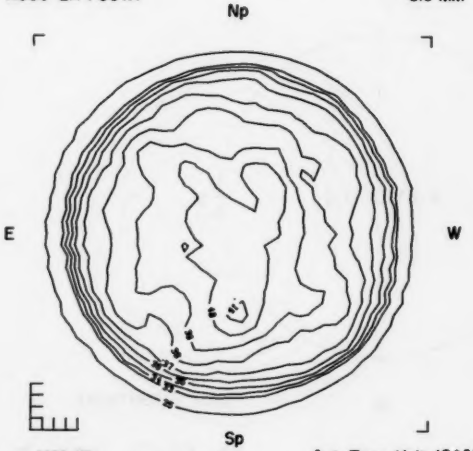
NOSC LA POSTA 2.0 CM



1714 UT

Ant. Temp. Unit 100°K

NOSC LA POSTA 8.6 MM



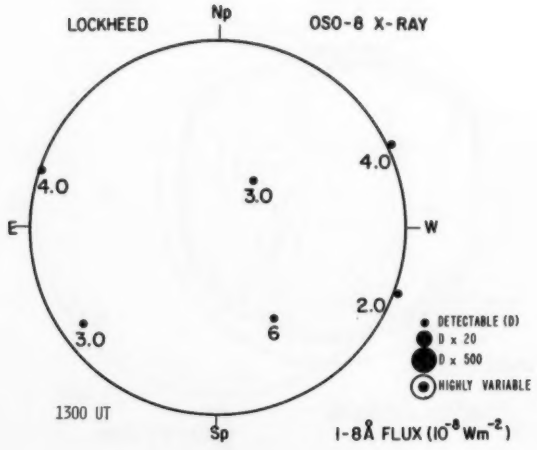
1612 UT

Ant. Temp. Unit 100°K

89
Aug 78

AUGUST 22, 1978 (P = 18.18, B_o = 6.94, L_o = 23.74)

LOCKHEED OSO-8 X-RAY

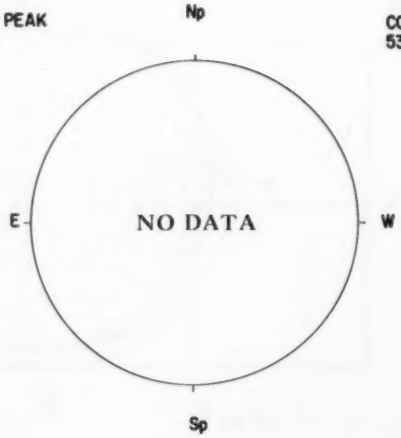


1300 UT

1-8Å FLUX (10^{-8} Wm^{-2})

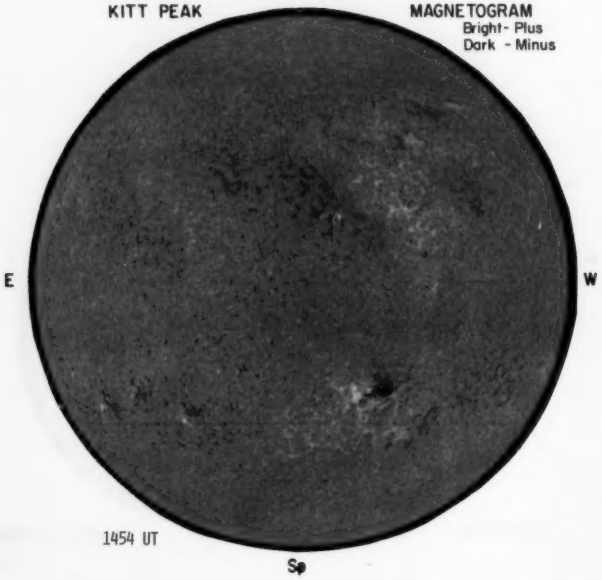
SACRAMENTO PEAK

CORONA (1.15 $R_\odot$)
5303 Å



KITT PEAK

MAGNETOGRAM
Bright - Plus
Dark - Minus

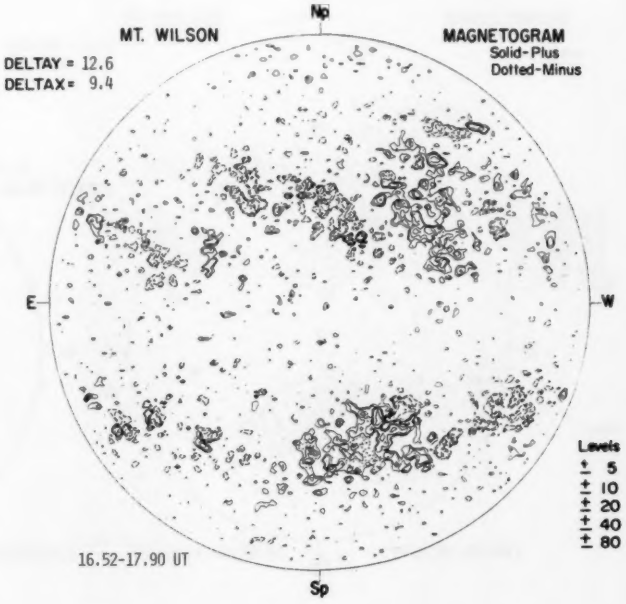


1454 UT

MT. WILSON

MAGNETOGRAM
Solid - Plus
Dotted - Minus

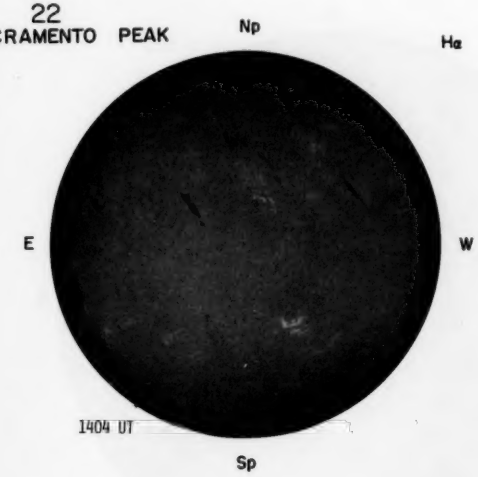
DELTAY = 12.6
DELTAX = 9.4



16.52-17.90 UT

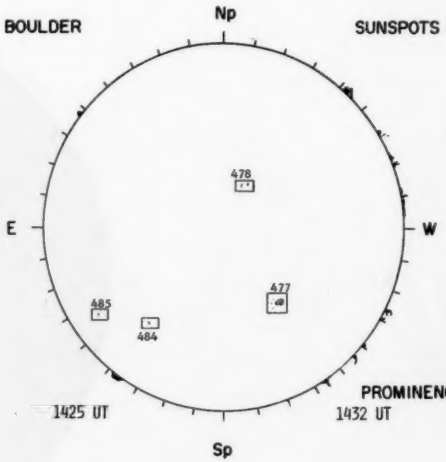
22

SACRAMENTO PEAK



1404 UT

Hα BOULDER



1425 UT

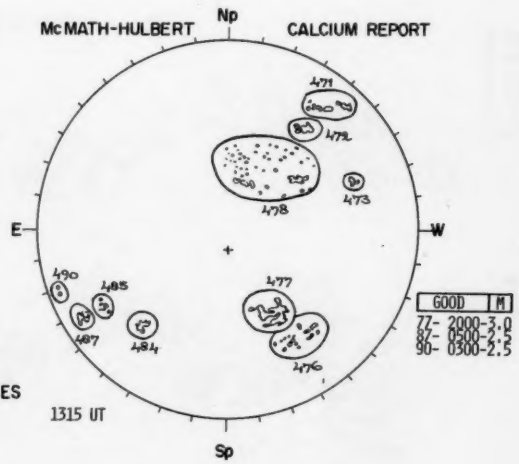
SUNSPOTS

PROMINENCES

1432 UT

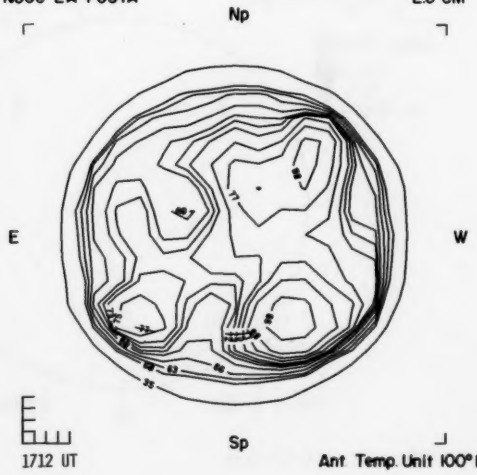
McMATH-HULBERT

CALCIUM REPORT



1315 UT

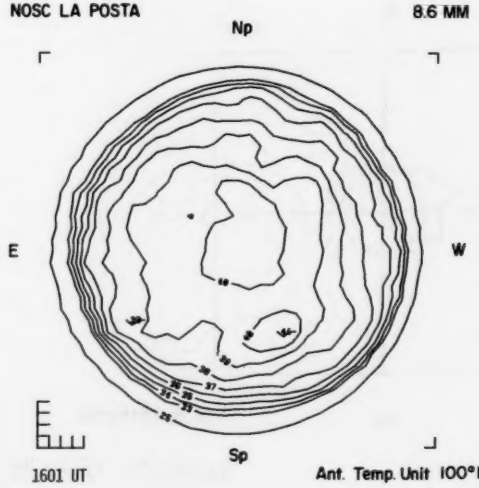
NOSC LA POSTA 2.0 CM



1712 UT

Ant. Temp. Unit 100°K

NOSC LA POSTA 8.6 MM



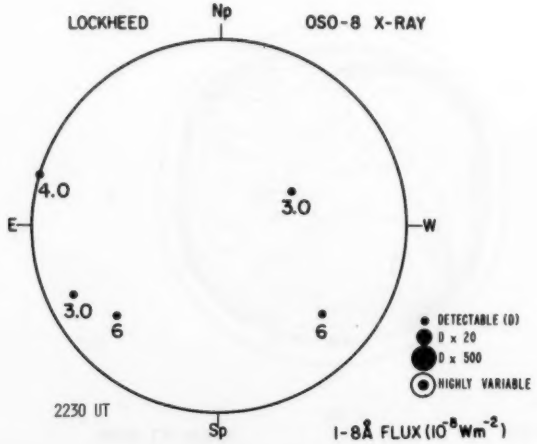
1601 UT

Ant. Temp. Unit 100°K

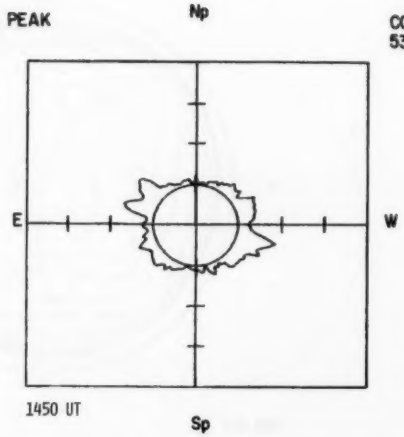
91
Aug 78

AUGUST 23, 1978 (P = 18.49, B_o = 6.97, L_o = 10.52)

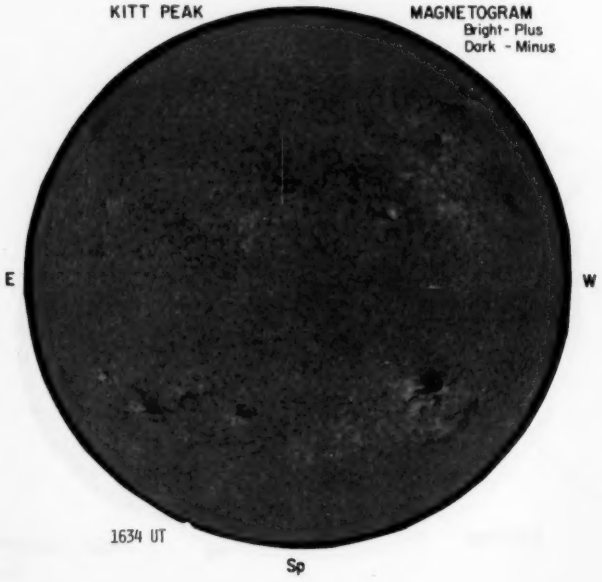
LOCKHEED OSO-8 X-RAY



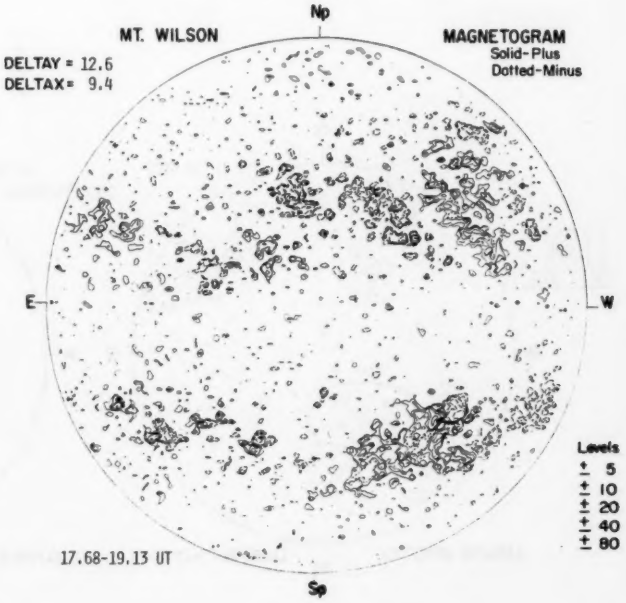
SACRAMENTO PEAK



KITT PEAK MAGNETOGRAM
Bright - Plus
Dark - Minus

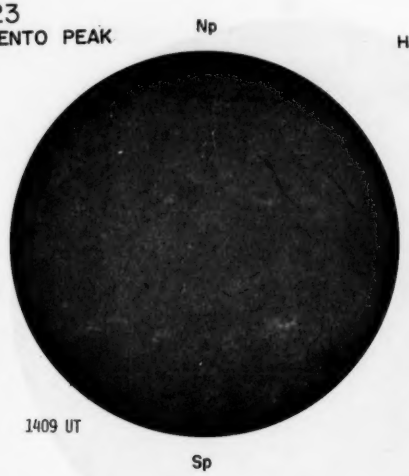


MT. WILSON MAGNETOGRAM
Solid - Plus
Dotted - Minus
DELTAY = 12.6
DELTAX = 9.4



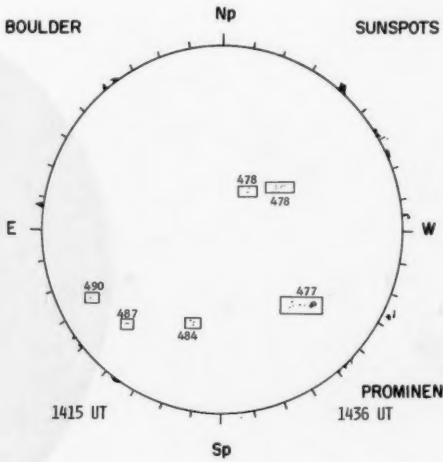
23

ACRAMENTO PEAK



1409 UT

Hα BOULDER



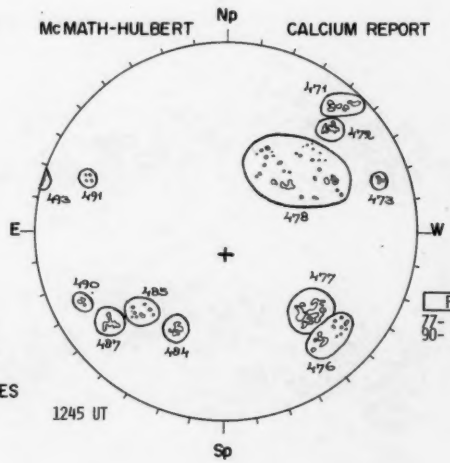
1415 UT

SUNSPOTS

PROMINENCES

1436 UT

McMATH-HULBERT



1245 UT

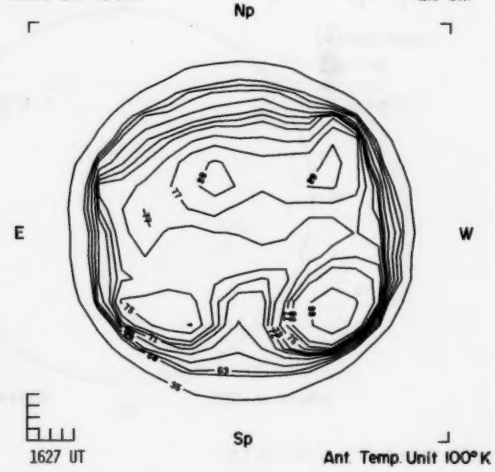
CALCIUM REPORT

FAIR M

77- 1700-2.5

90- 0300-2.5

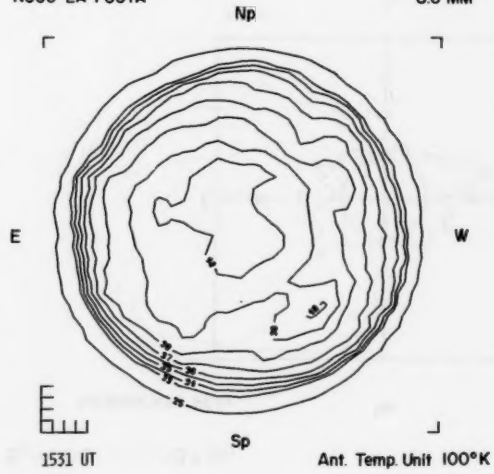
NOSC LA POSTA 2.0 CM



1627 UT

Ant. Temp. Unit 100°K

NOSC LA POSTA 8.6 MM



1531 UT

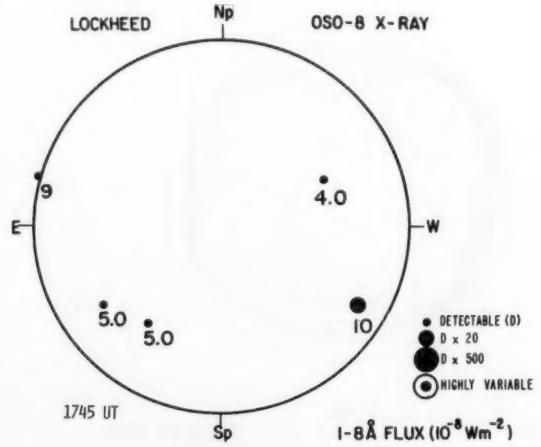
Ant. Temp. Unit 100°K

93

Aug 78

AUGUST 24, 1978 (P = 18.79, B_o = 7.00, L_o = 357.31)

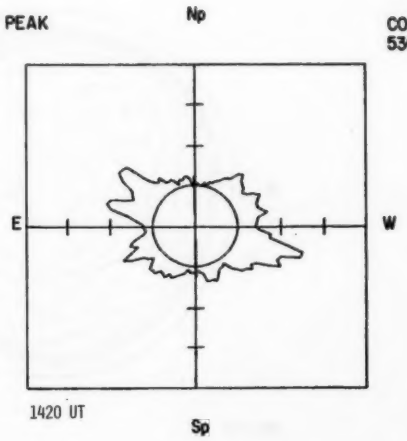
LOCKHEED OSO-8 X-RAY



1745 UT

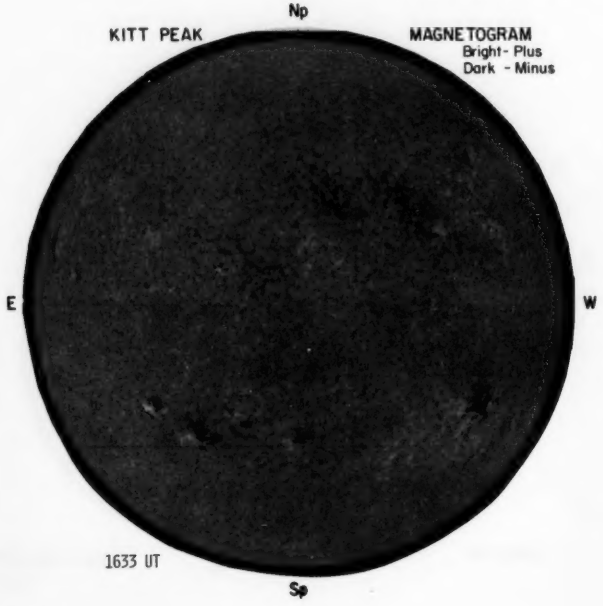
1-8Å FLUX (10^{-8} Wm^{-2})

SACRAMENTO PEAK



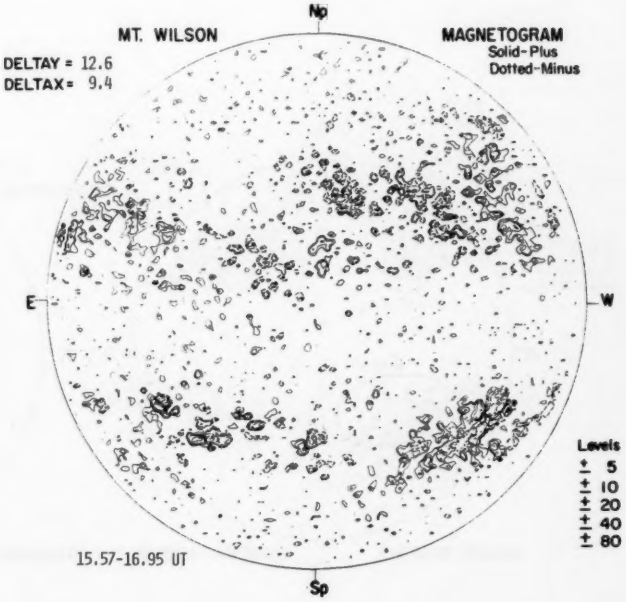
1420 UT

KITT PEAK MAGNETOGRAM
Bright - Plus
Dark - Minus



1633 UT

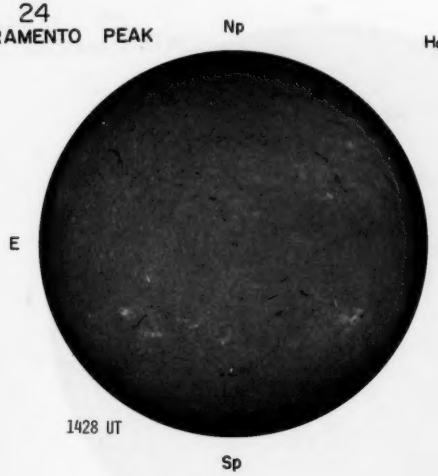
MT. WILSON MAGNETOGRAM
Solid - Plus
Dotted - Minus
DELTAY = 12.6
DELTAX = 9.4



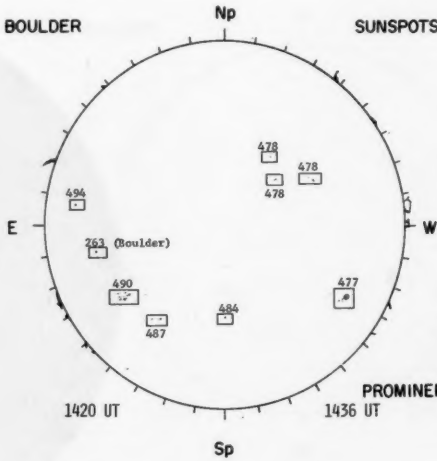
15.57-16.95 UT

24

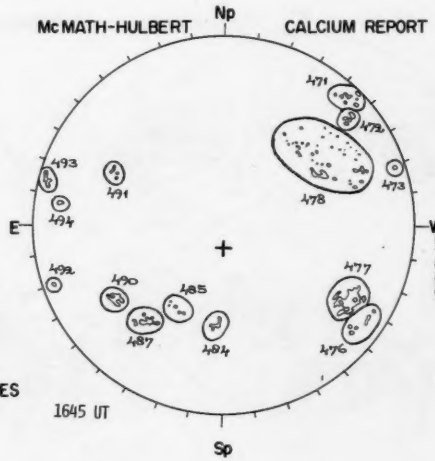
ACRAMENTO PEAK



Hα BOULDER



SUNSPOTS



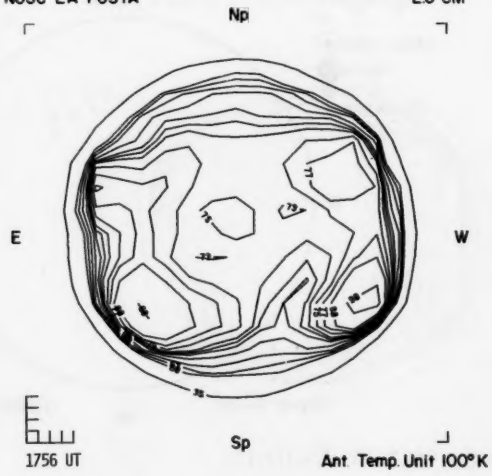
PROMINENCES

McMATH-HULBERT

CALCIUM REPORT

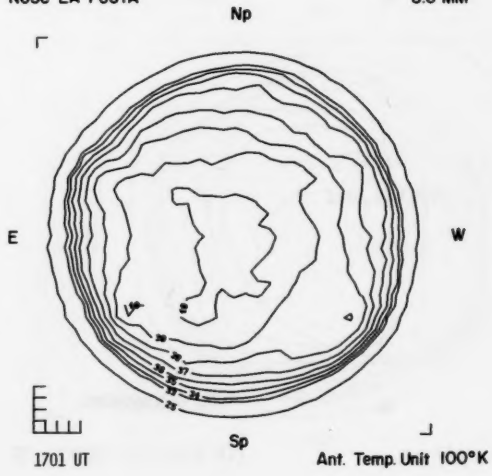
FAIR	M
77- 1700-2.5	
90- 0600-2.5	
93- 0600-2.5	
94- 0100-2.5	

NOSC LA POSTA 2.0 CM



Ant. Temp. Unit 100°K

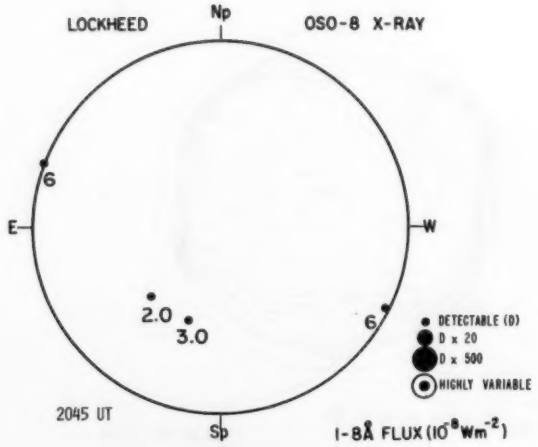
NOSC LA POSTA 8.6 MM



Ant. Temp. Unit 100°K

AUGUST 25, 1978 (P = 19.08, B_o = 7.03, L_o = 344.10)

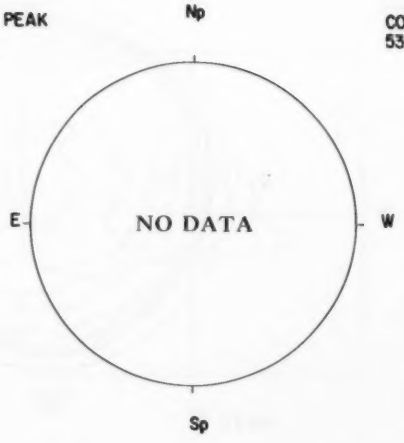
LOCKHEED OSO-8 X-RAY



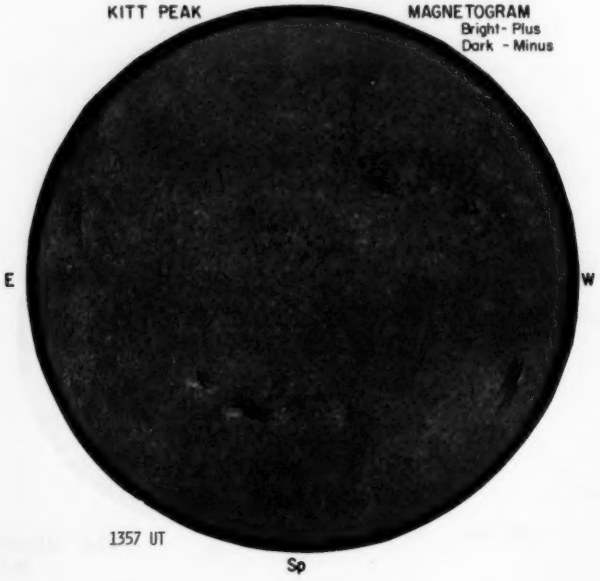
2045 UT

1-8Å FLUX (10^{-8} Wm^{-2})

SACRAMENTO PEAK CORONA (1.15 $R_\odot$) 5303 Å



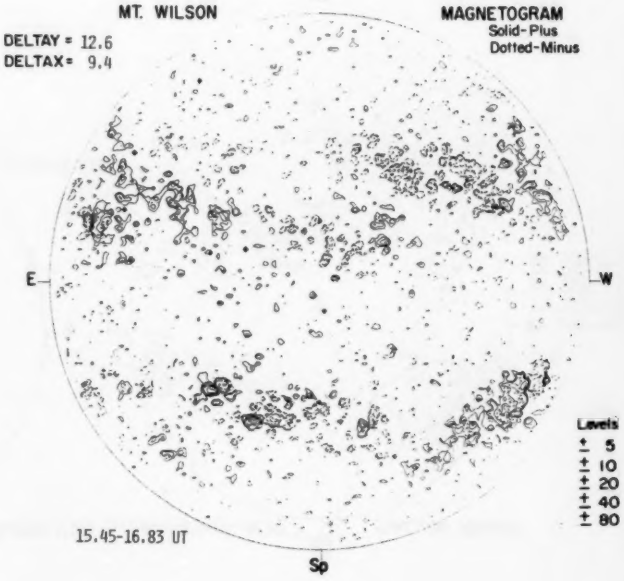
KITT PEAK MAGNETOGRAM
Bright - Plus
Dark - Minus



1357 UT

MT. WILSON MAGNETOGRAM
Solid - Plus
Dotted - Minus

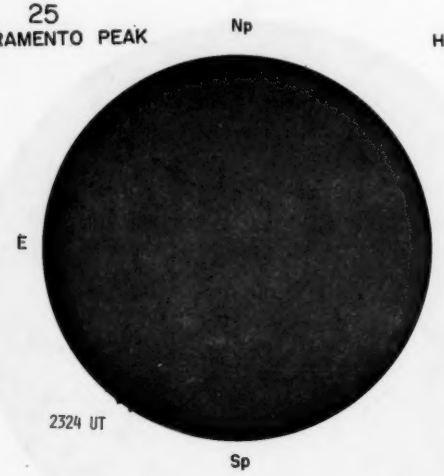
DELTAY = 12.6
DELTAX = 9.4



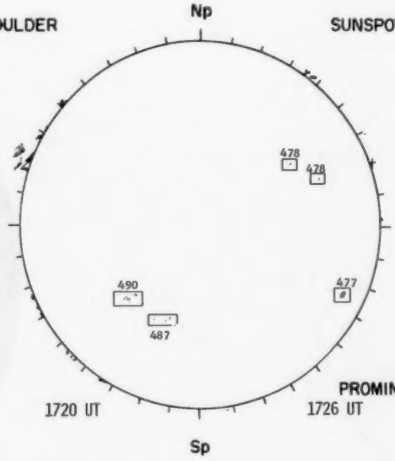
15.45-16.83 UT

25

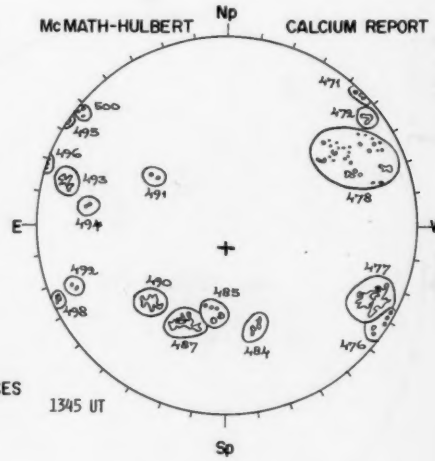
SACRAMENTO PEAK



BOULDER SUNSPOTS

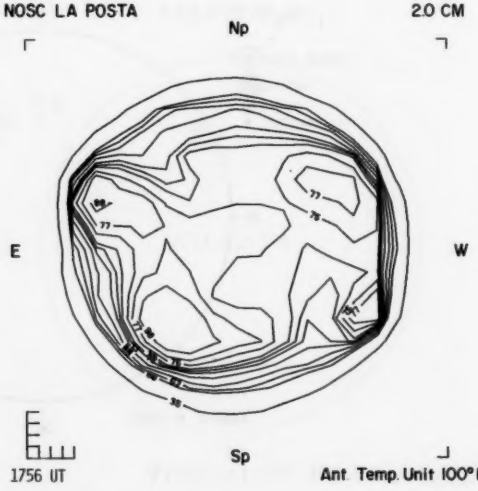


McMATH-HULBERT CALCIUM REPORT

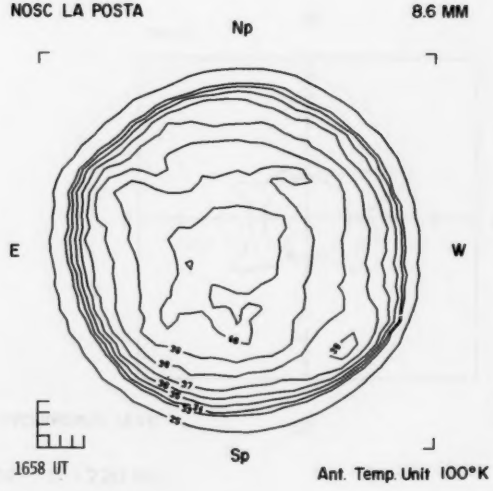


PROMINENCES

NOSC LA POSTA 2.0 CM



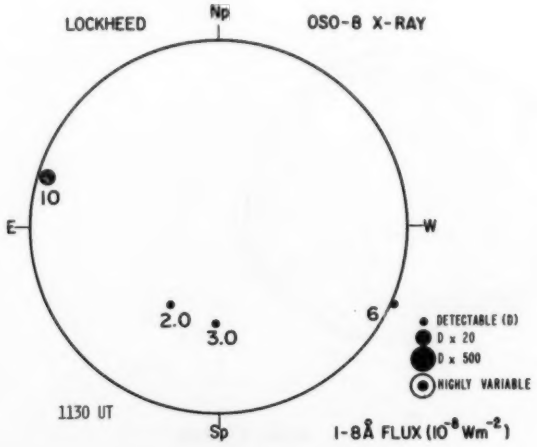
NOSC LA POSTA 8.6 MM



97
Aug 78

AUGUST 26, 1978 (P = 19.37, B_0 = 7.06, L_0 = 330.88)

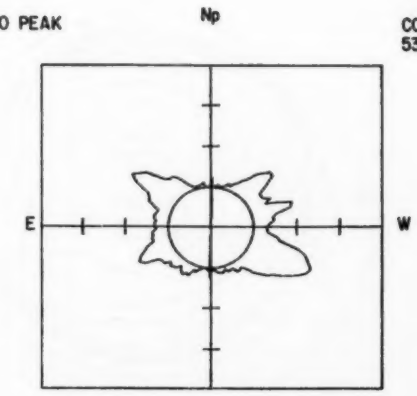
LOCKHEED OSO-8 X-RAY



1130 UT

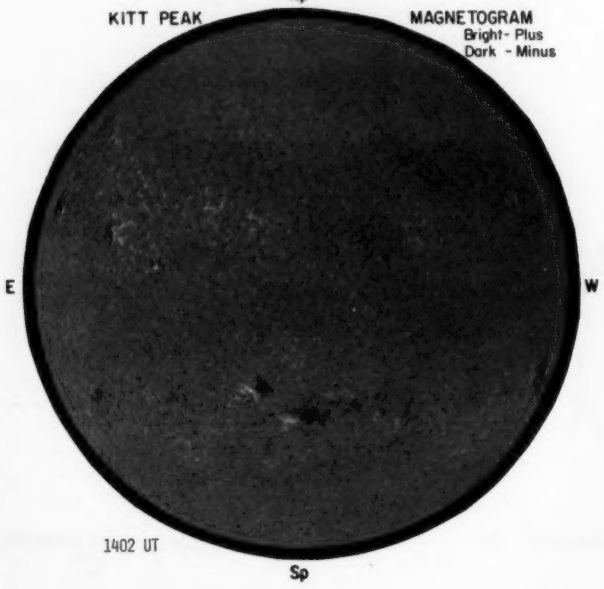
1-8Å FLUX (10^{-8} Wm^{-2})

SACRAMENTO PEAK CORONA (1.15 $R_\odot$) 5303 Å



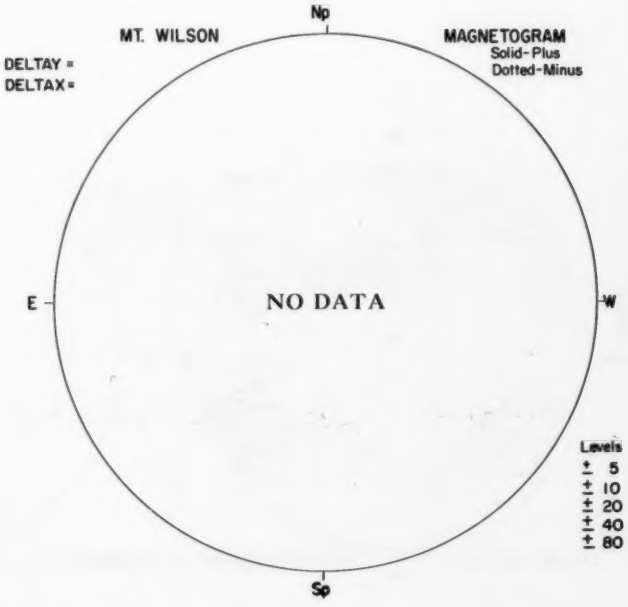
1444 UT

KITT PEAK MAGNETOGRAM
Bright - Plus
Dark - Minus



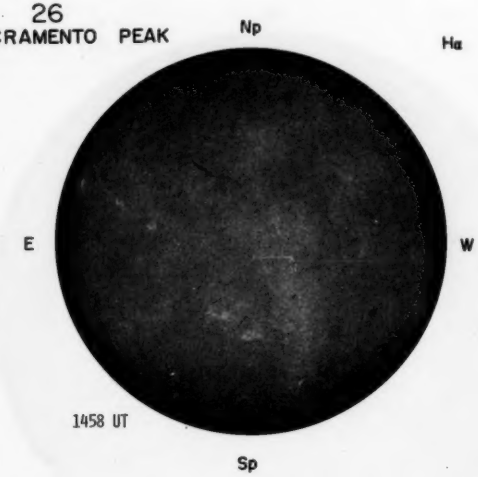
1402 UT

MT. WILSON MAGNETOGRAM
Solid - Plus
Dotted - Minus
DELTAY =
DELTAX =

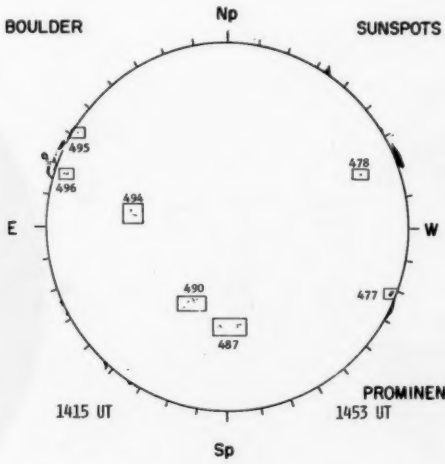


26

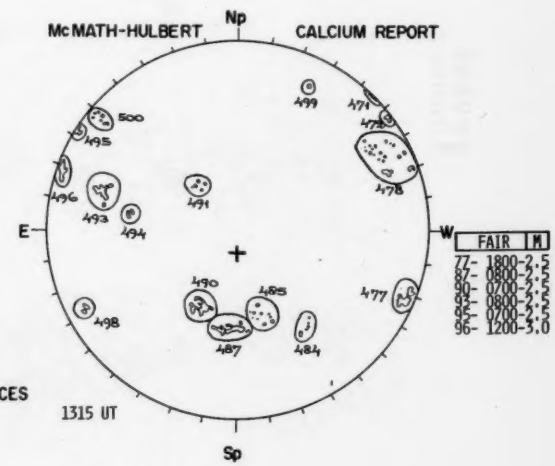
SACRAMENTO PEAK Hα



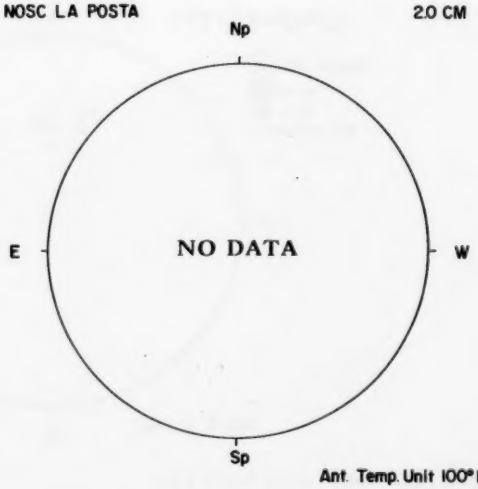
BOULDER SUNSPOTS



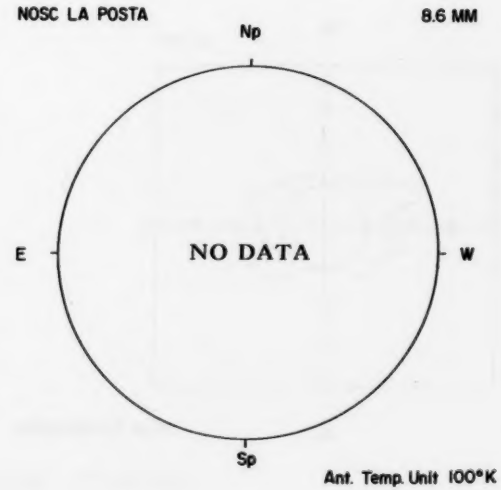
McMATH-HULBERT CALCIUM REPORT



NOSC LA POSTA 2.0 CM

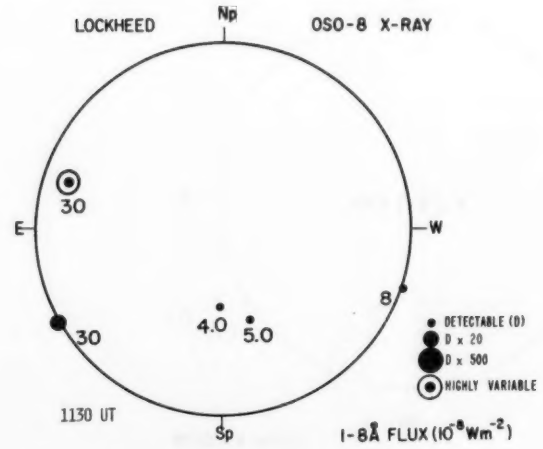


NOSC LA POSTA 8.6 MM



AUGUST 27, 1978 (P = 19.66, B_o = 7.09, L_o = 317.67)

LOCKHEED OSO-8 X-RAY

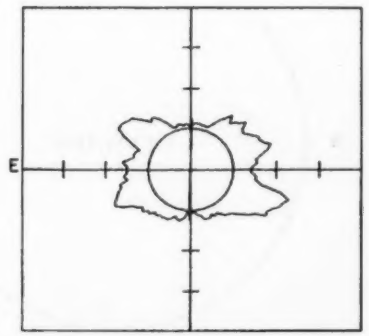


1130 UT

1-8Å FLUX (10^{-8} Wm^{-2})

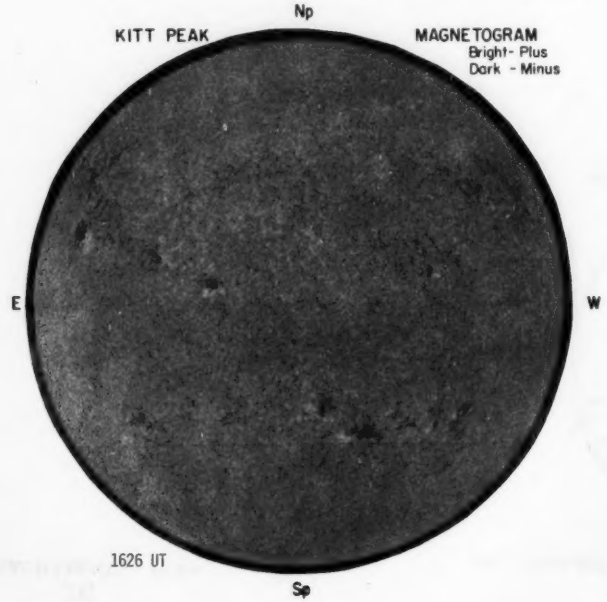
SACRAMENTO PEAK

CORONA (1.15 $R_\odot$)
5303 Å



1903 UT

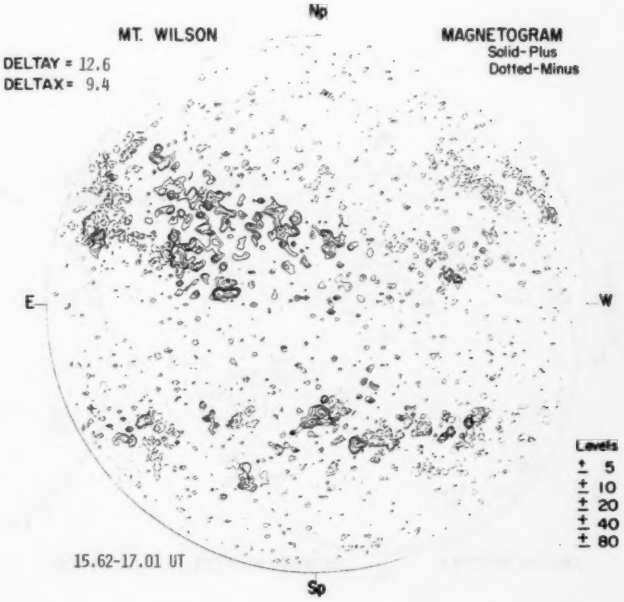
KITT PEAK MAGNETOGRAM
Bright- Plus
Dark - Minus



1626 UT

MT. WILSON MAGNETOGRAM
Solid- Plus
Dotted-Minus

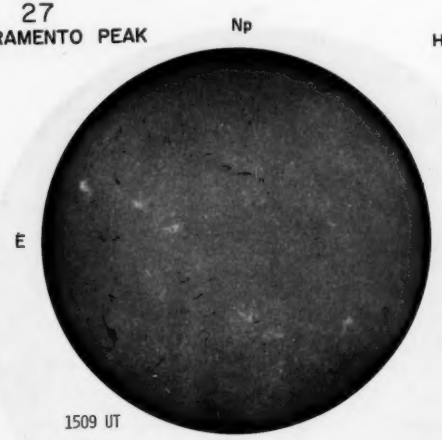
DELTAY = 12.6
DELTAX = 9.4



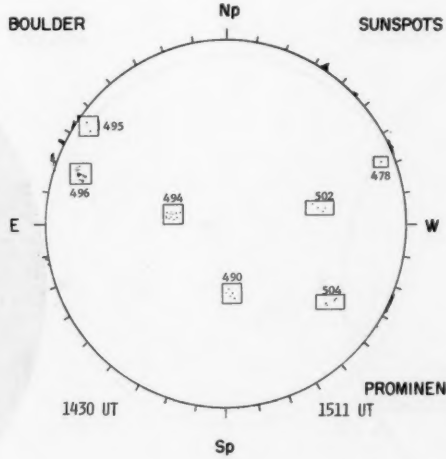
15.62-17.01 UT

27

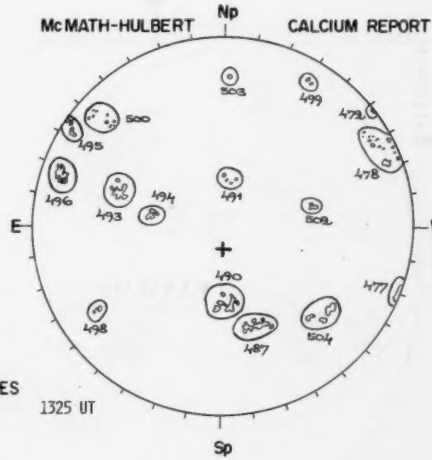
SACRAMENTO PEAK Hα



BOULDER SUNSPOTS



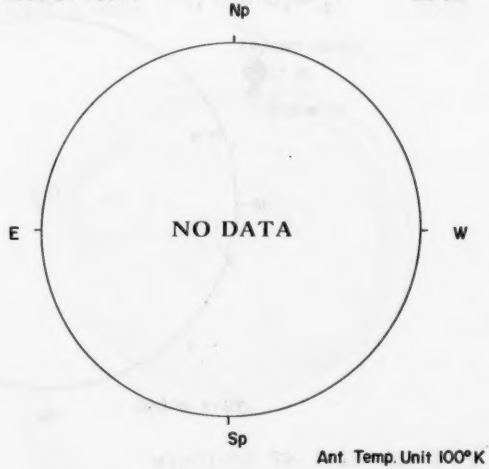
McMATH-HULBERT CALCIUM REPORT



PROMINENCES

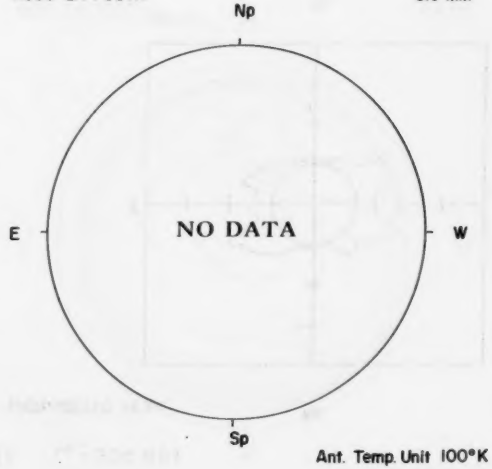
GOOD	M
93- 0800-2.5	
94- 0300-2.5	
96- 1100-3.5	
02- 0200-2.5	
04- 0700-2.5	

NOSC LA POSTA 2.0 CM



Ant. Temp. Unit 100°K

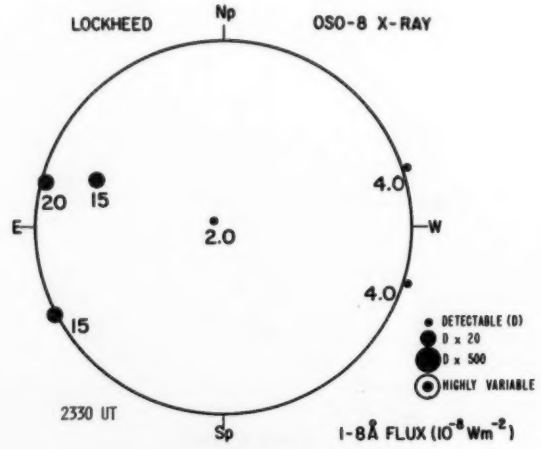
NOSC LA POSTA 8.6 MM



Ant. Temp. Unit 100°K

AUGUST 28, 1978 (P = 19.94, B_0 = 7.11, L_0 = 304.46)

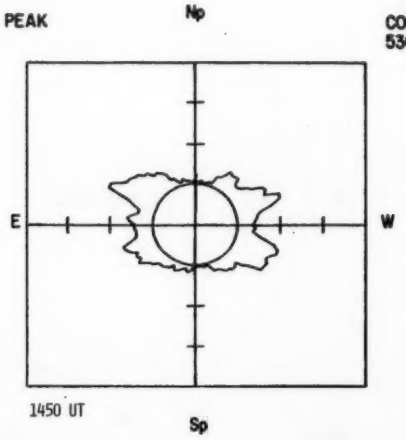
LOCKHEED OSO-8 X-RAY



2330 UT

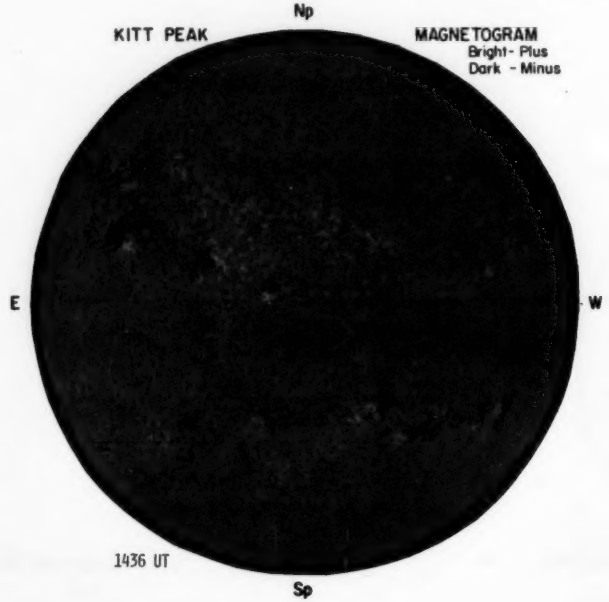
1-8Å FLUX (10^{-8} Wm^{-2})

SACRAMENTO PEAK CORONA (1.15 $R_\odot$) 5303 Å



1450 UT

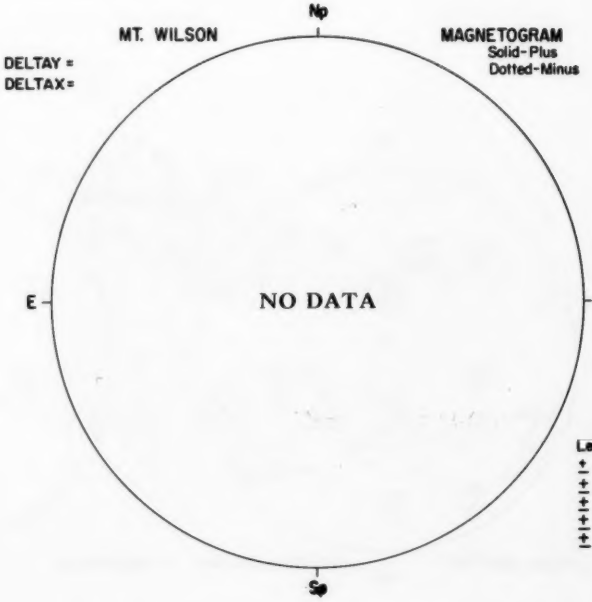
KITT PEAK MAGNETOGRAM
Bright - Plus
Dark - Minus



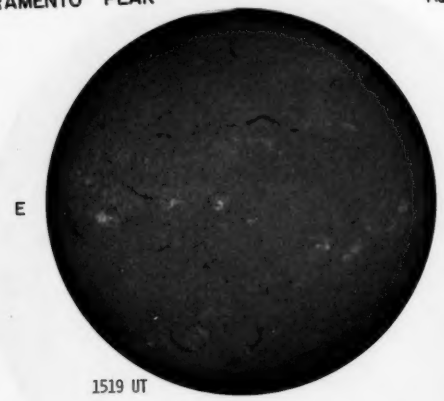
1436 UT

MT. WILSON MAGNETOGRAM
Solid - Plus
Dotted - Minus

DELTAY =
DELTAX=

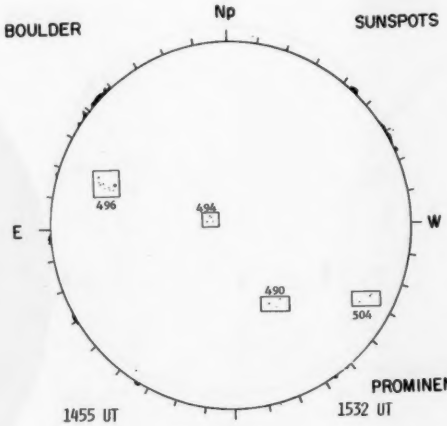


28
SACRAMENTO PEAK



1519 UT

Hα BOULDER



1455 UT

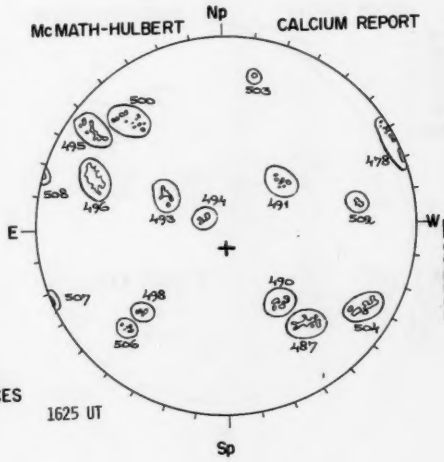
SUNSPOTS

PROMINENCES

1532 UT

McMATH-HULBERT

CALCIUM REPORT

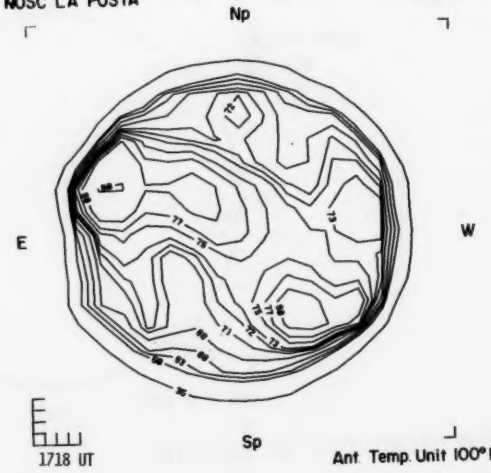


1625 UT

GOOD	M
94- 0300-2.5	
96- 1700-3.0	
02- 0300-2.5	
04- 0800-2.5	
07- 0500-2.5	
08- 0500-3.0	

NOSC LA POSTA

2.0 CM

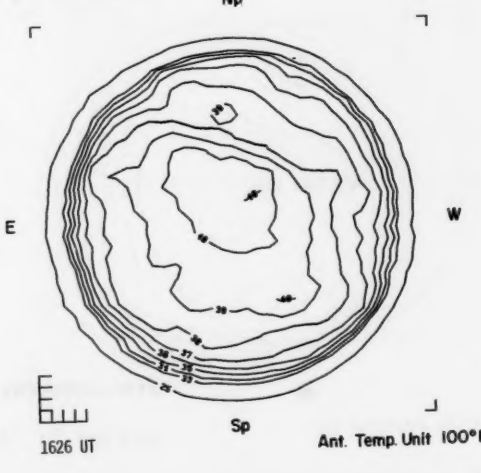


1718 UT

Ant. Temp. Unit 100°K

NOSC LA POSTA

8.6 MM

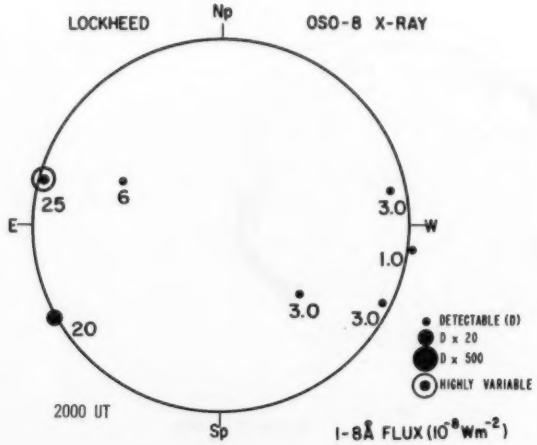


1626 UT

Ant. Temp. Unit 100°K

AUGUST 29, 1978 (P=20.22, B_o=7.14, L_o=291.25)

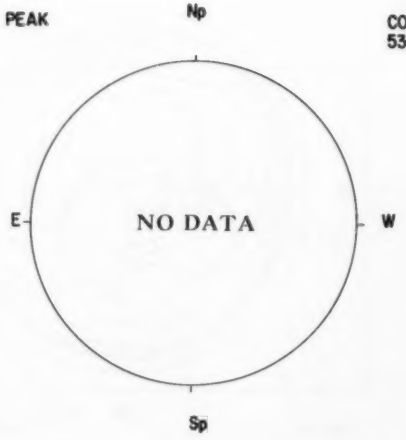
LOCKHEED — OSO-8 X-RAY



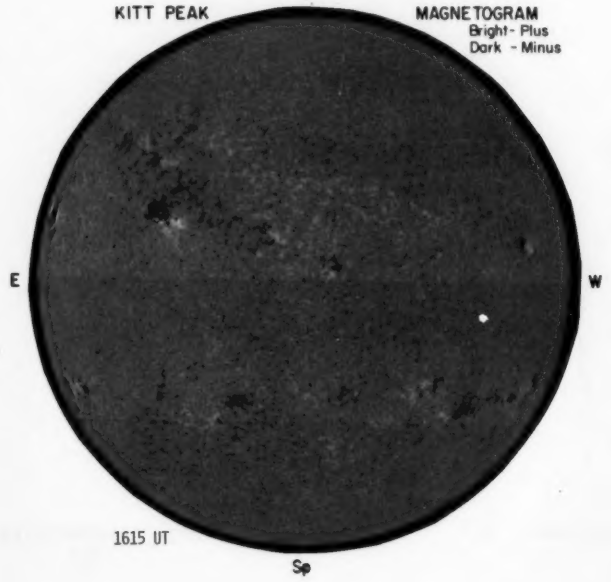
2000 UT

1-8Å FLUX (10^{-8} Wm^{-2})

SACRAMENTO PEAK — CORONA (1.15 $R_\odot$) 5303 Å



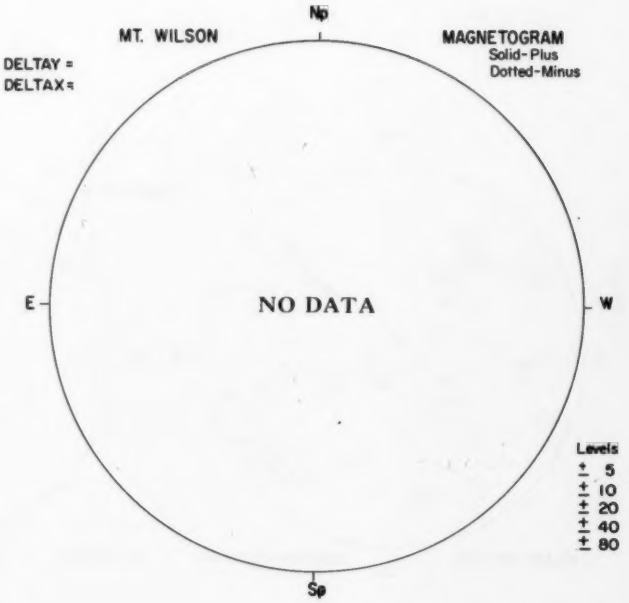
KITT PEAK — MAGNETOGRAM
Bright - Plus
Dark - Minus



1615 UT

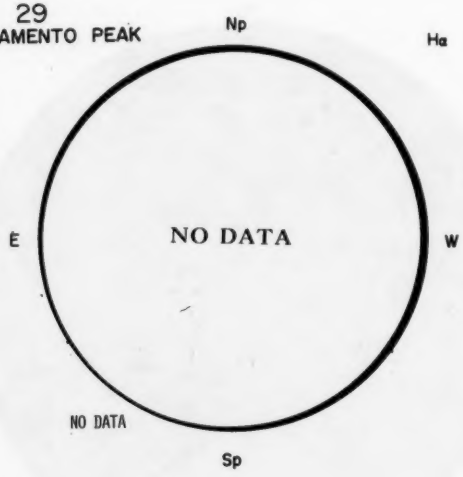
MT. WILSON — MAGNETOGRAM
Solid - Plus
Dotted - Minus

DELTAY =
DELTAX =

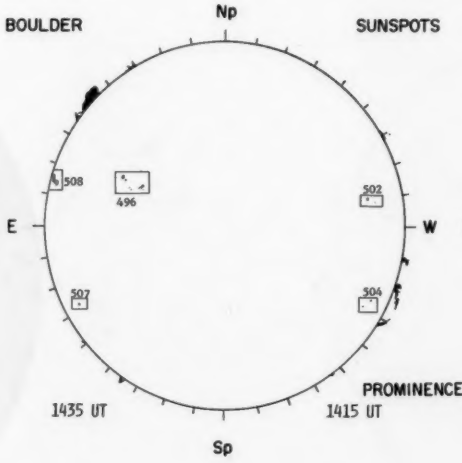


29

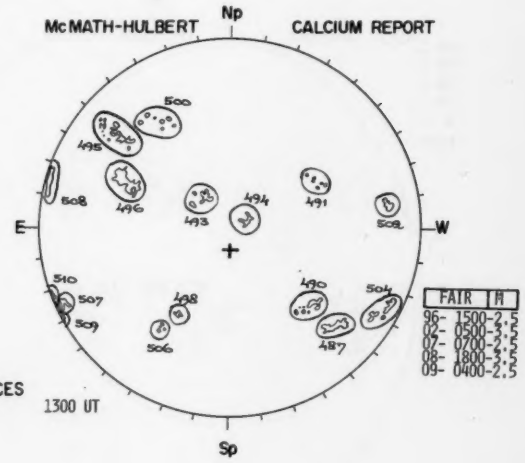
SACRAMENTO PEAK



Hα BOULDER



SUNSPOTS

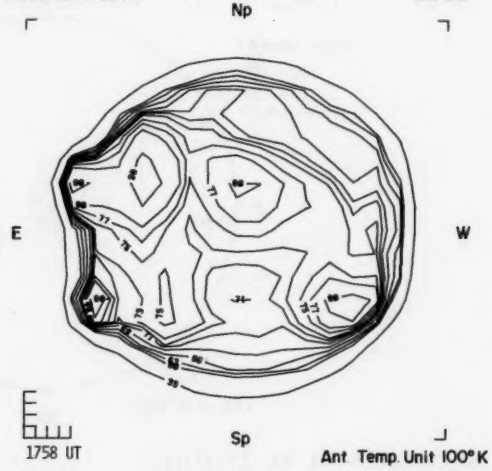


McMATH-HULBERT

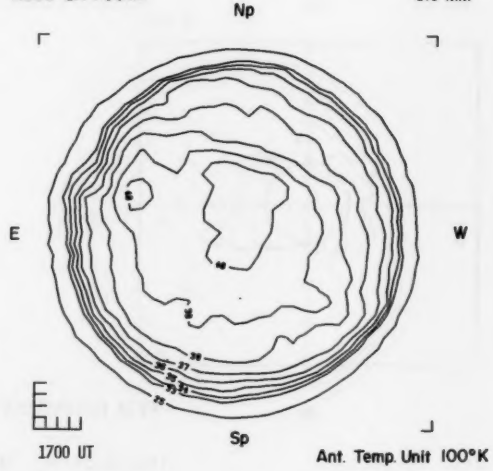
CALCIUM REPORT

FAIR	M
96- 1500	2.5
02- 0500	2.5
07- 0700	2.5
08- 1800	2.5
09- 0400	2.5

NOSC LA POSTA 2.0 CM

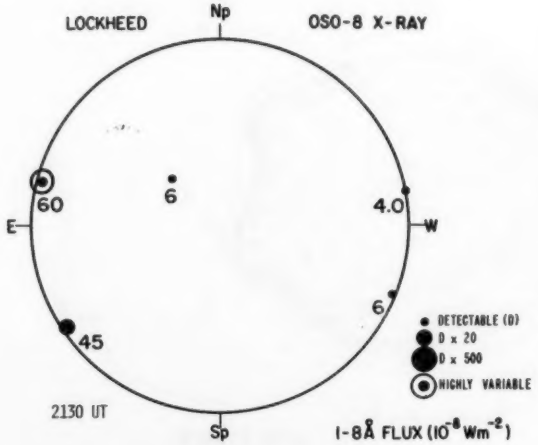


NOSC LA POSTA 8.6 MM



AUGUST 30, 1978 (P = 20.49, B_0 = 7.16, L_0 = 278.04)

LOCKHEED OSO-8 X-RAY

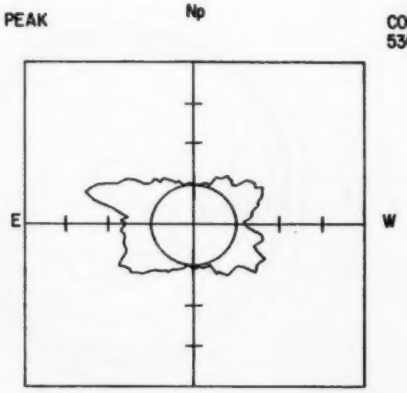


2130 UT

I-8Å FLUX (10^{-8} Wm^{-2})

SACRAMENTO PEAK

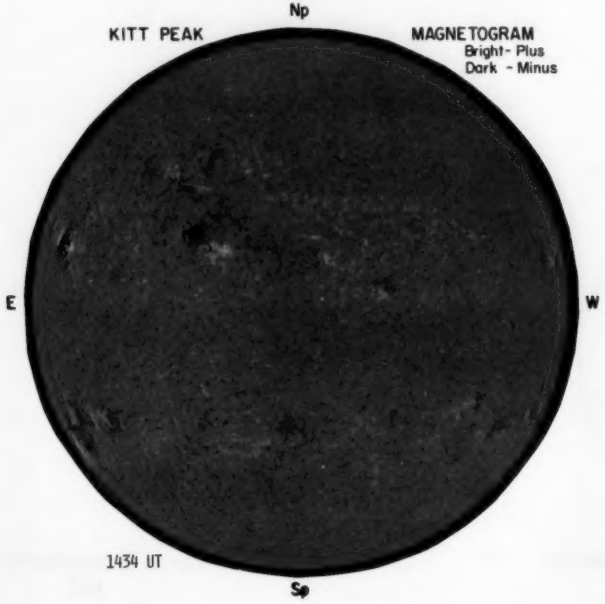
CORONA (1.15 $R_\odot$)
5303 Å



1509 UT

KITT PEAK

MAGNETOGRAM
Bright - Plus
Dark - Minus

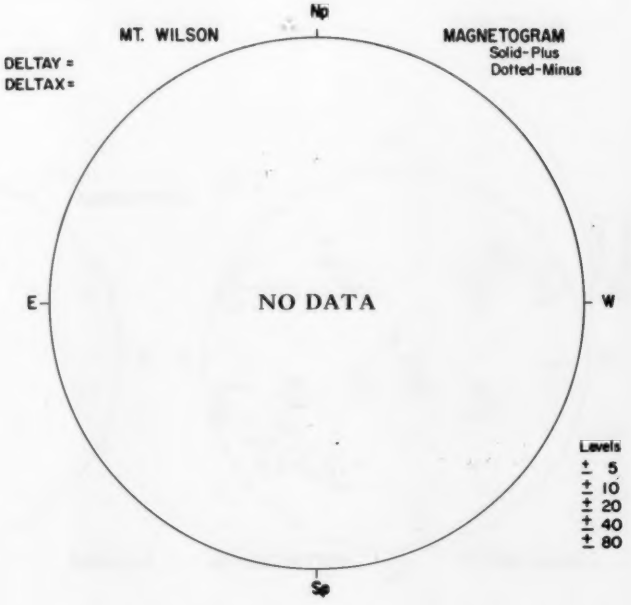


1434 UT

MT. WILSON

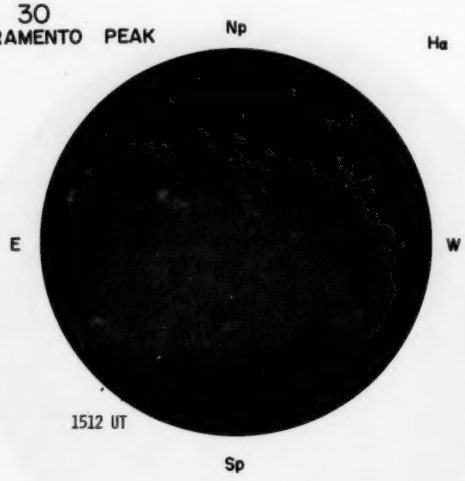
MAGNETOGRAM
Solid - Plus
Dotted - Minus

DELTAY =
DELTAX =

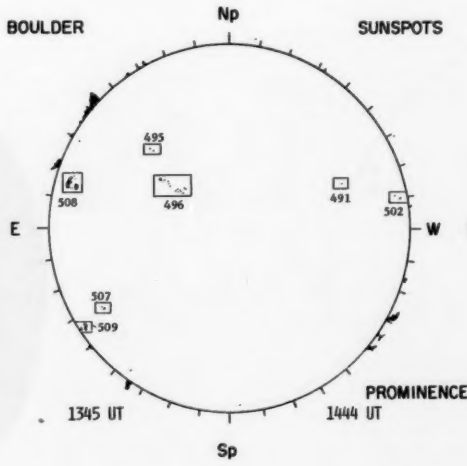


30

SACRAMENTO PEAK

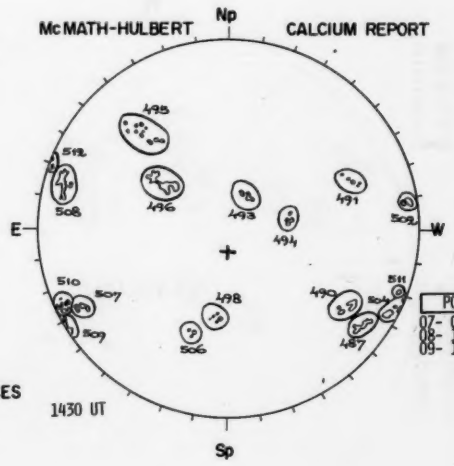


Hα BOULDER



SUNSPOTS

McMATH-HULBERT

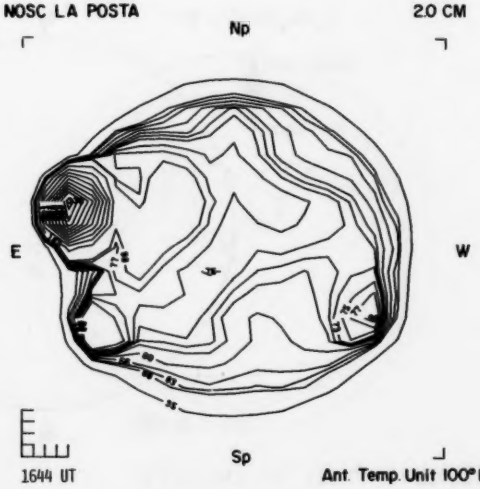


CALCIUM REPORT

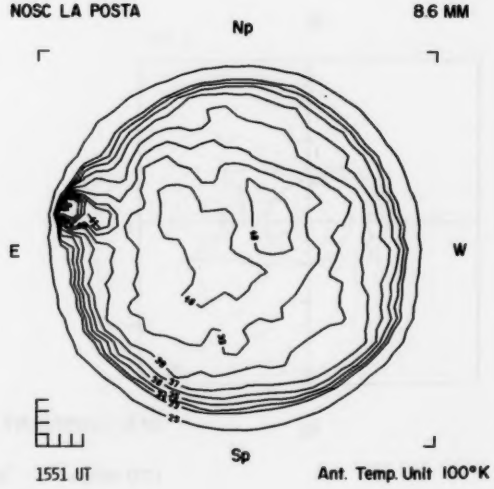
POOR	M
07- 0600-2.5	
08- 1700-3.5	
09- 1000-3.5	

PROMINENCES

NOSC LA POSTA 2.0 CM

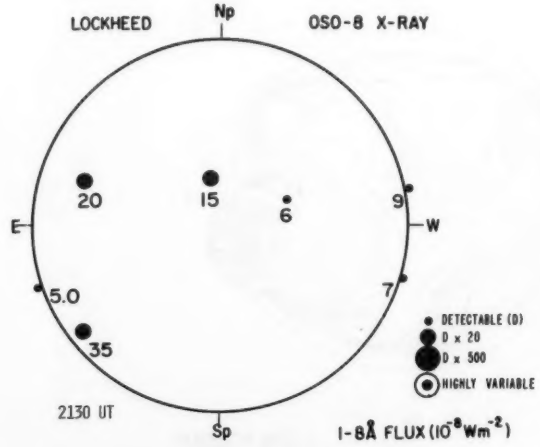


NOSC LA POSTA 8.6 MM



AUGUST 31, 1978 (P = 20.75, B_o = 7.18, L_o = 264.83)

LOCKHEED OSO-8 X-RAY



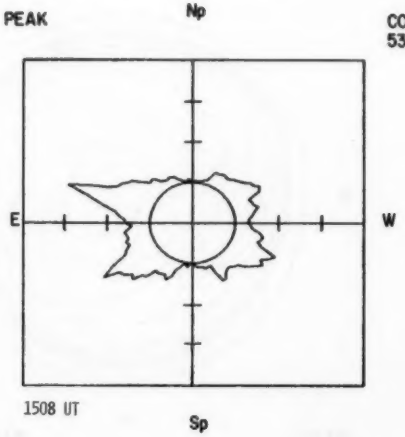
DETECTABLE (D)
D x 20
D x 500
HIGHLY VARIABLE

2130 UT

1-8Å FLUX (10^{-8} Wm^{-2})

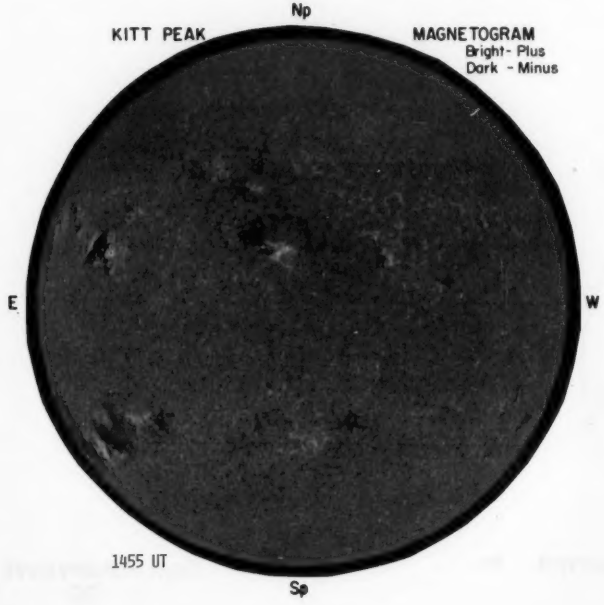
SACRAMENTO PEAK

CORONA (1.15 $R_\odot$)
5303 Å



1508 UT

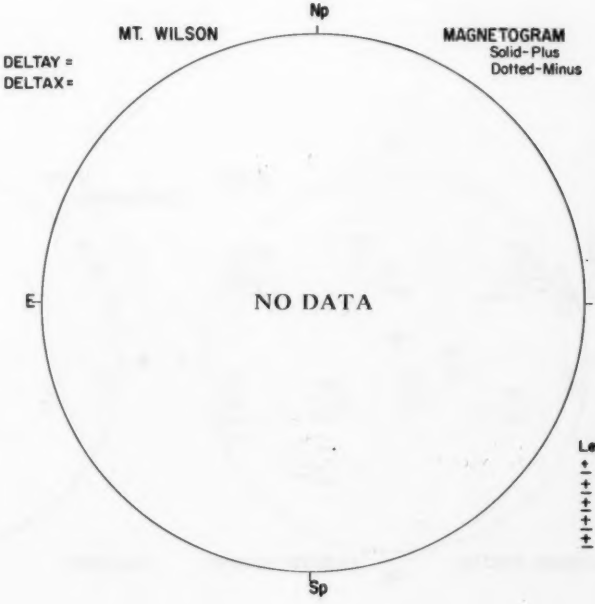
KITT PEAK MAGNETOGRAM
Bright - Plus
Dark - Minus



1455 UT

MT. WILSON MAGNETOGRAM
Solid - Plus
Dotted - Minus

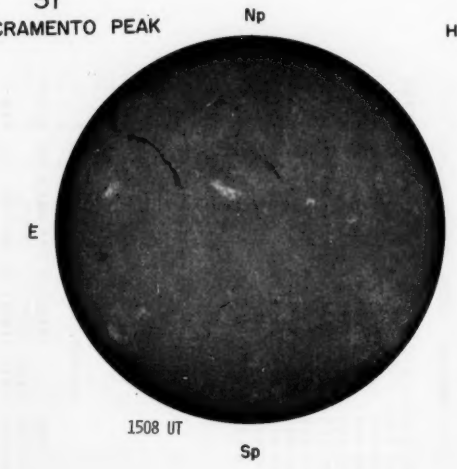
DELTAY =
DELTAX =



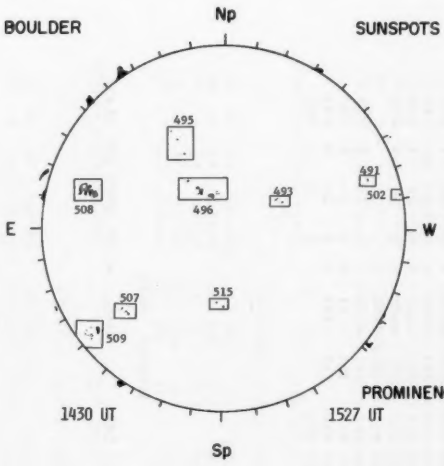
Levels
± 5
± 10
± 20
± 40
± 80

31

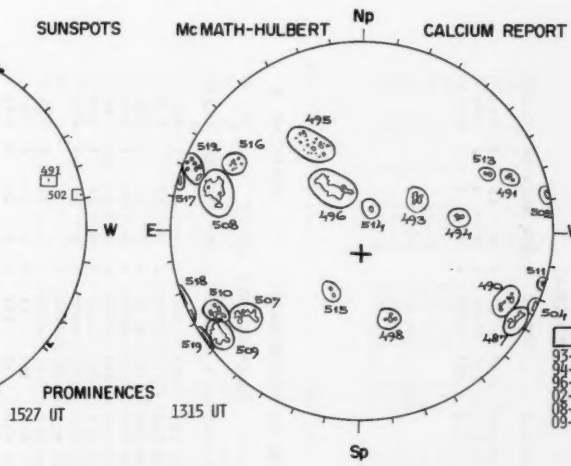
SACRAMENTO PEAK



Hα BOULDER



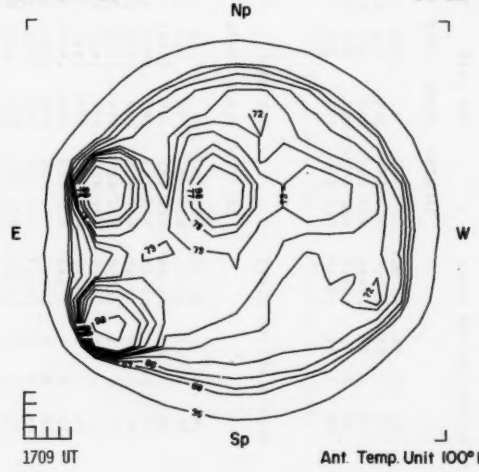
SUNSPOTS



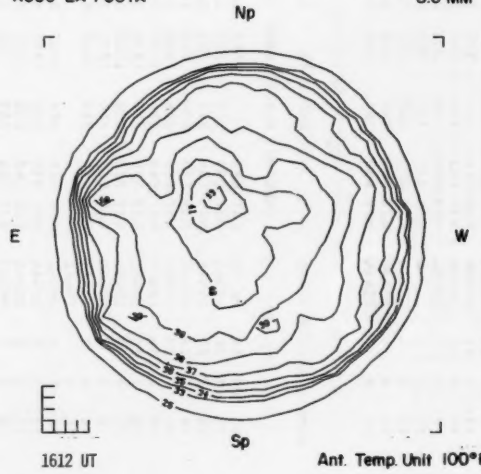
McMATH-HULBERT

CALCIUM REPORT

NOSC LA POSTA 2.0 CM



NOSC LA POSTA 8.6 MM



REGIONS OF SOLAR ACTIVITY

AUGUST 1978

MCMATH REGION 15444 CMP DATE 1.7

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
78	7	27	15444	N18 E70	291	100	1.5
78	7	28	15444	N18 E58	291	400	3.5
78	7	29	15444	N18 E43	292	600	3.0
78	7	30	15444	N18 E29	293	600	2.5
78	7	31	15444	N18 E16	294	500	2.0
78	8	1	15444	N18 E03	305	500	2.0
78	8	3	15444	N19 W25	304	200	2.0
78	8	4	15444	N20 W37	305	300	2.0
78	8	5	15444	N20 W50	305	200	2.0
78	8	6	15444	N20 W65	307	200	2.0
78	8	7	15444	N19 W82	305	100	1.0

SUNSPOT DATA

NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
20153	N18 E55	292	(B)	3	M	10	2	BXO
20153	N19 E40	295	(AP)	2	B	0	1	AXX
20153	N18 E23	297	(AP)	4	B	0	1	AXX

MCMATH REGION 15441 CMP DATE 3.2 RETURN OF REGION 15407 ROTATION 2

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
78	7	26	15441	N37 E90	285	200	1.0
78	7	27	15441	N35 E84	277	700	3.5
78	7	28	15441	N36 E75	274	700	3.5
78	7	29	15441	N37 E61	274	1000	3.0
78	7	30	15441	N37 E48	274	1400	3.0
78	7	31	15441	N37 E35	275	1800	3.0
78	8	1	15441	N37 E22	286	1800	3.0
78	8	2	15441	N36 E09	285	1700	3.0
78	8	3	15441	N36 W05	284	1500	3.0
78	8		15441				
78	8	4	15441	N36 W17	285	2000	3.0
78	8	5	15441	N36 W30	285	1800	3.0
78	8	6	15441	N36 W43	285	1500	2.5
78	8	7	15441	N37 W60	283	900	3.0
78	8	8	15441	N37 W68	282	500	3.0
78	8	9	15441	N37 W81	281	500	2.0
78	8	10	15441	N40 W85	273	600	1.5

SUNSPOT DATA

NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
20151	N36 E80	280	AP	2	B	10	1	HSX
20151	N36 E69	278	(AP)	4	M	60	1	HSX
20151	N36 E58	277	(B)	3	B	50	3	DSO
20151	N35 E41	279	(BP)	4	B	60	7	DRO
20151	N35 E28	280	(BP)	4	R	50	12	CRO
20151	N35 E15	291	(AP)	3	B	20	4	CRO
20151	N35 E02	290	(AP)	4	B	20	3	HRX
20151	N35 W11	290	(AP)	3				
20156	N38 W02	281	(AF)	2	M	50	2	HSX
20151	N35 W24	290	(B)	3	B	20	5	CRO
20151	N35 W34	287	(AP)	1	B	10	4	BXO
	N35 W41				B	0	3	BXO

MCMATH REGION 15445 CMP DATE 3.5

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
78	7	28	15445	N10 E80	269	300	1.0
78	7	29	15445	N12 E67	268	300	2.0
78	7	30	15445	N12 E53	269	200	2.0
78	7	31	15445	N12 E40	270	100	2.0

SUNSPOT DATA

NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS

MCMATH REGION 15443 CMP DATE 3.7 RETURN OF REGIONS 15385 AND 15409 ROTATION 2

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
78	7	27	15443	N20 E87	274	500	1.0
78	7	28	15443	N22 E80	269	1400	2.5
78	7	29	15443	N23 E67	268	1600	3.0
78	7	30	15443	N23 E55	267	1400	2.5
78	8	1	15443	N22 E29	279	1300	2.5
78	8	2	15443	N21 E15	279	1500	2.5
78	8	3	15443	N21 E01	278	1500	2.5
78	8	4	15443	N21 W12	280	1500	2.5
78	8	5	15443	N21 W24	279	1500	2.5
78	8	6	15443	N21 W37	279	1500	2.0
78	8	7	15443	N21 W51	274	800	2.0
78	8	8	15443	N22 W60	274	400	2.5
78	8	9	15443	N22 W73	273	400	1.0
78	8	10	15443	N24 W84	272	400	1.0

SUNSPOT DATA

NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
20152	N19 E85	275	AP	2	B	10	1	HSX
20152	N19 E72	275	(AP)	5	M	70	1	HSX
20152	N20 E59	276	(AP)	4	B	90	1	HSX
20152	N20 E45	275	(AP)	4				
20152	N20 E19	287	(AP)	4	B	60	1	HSX
20152	N20 E05	287	(AP)	4	B	40	1	HSX
20152	N19 W08	287	(AP)	4	M	50	1	HSX
20152	N19 W22	288	(AP)	4	B	40	1	HSX
20152	N19 W35	288	(AP)	3	B	20	4	HRX
20161	N25 W32	272	(AF)	2	B	10	7	BXO

MCMATH REGION 15446 CMP DATE 3.7

CALCIUM PLAGE DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT
78	7	28	15446	S22 E87	262	500	2.0
78	7	29	15446	S22 E71	264	700	3.0
78	7	30	15446	S22 E57	265	800	3.0
78	7	31	15446	S23 E44	266	1200	3.0

SUNSPOT DATA

NW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
20154	S21 E81	266	AP	1				
20154	S21 E65	270	(BP)	3	B	40	1	HSX
20154	S22 E49	271	(AP)	4	B	60	7	DAO
20154	S24 E36	272	(AP)	3	R	90	9	CAO

CONTD

REGIONS OF SOLAR ACTIVITY

AUGUST 1978

MCMATH REGION 15446 (CONT) CMP DATE 3.7

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
78	8	1	15446	S23 E28	280	1400	3.0	20154	S23 E23	283	(BP)	4	B	50	10	CAO
78	8	2	15446	S23 E15	279	1600	3.0	20154	S23 E09	283	(BP)	4	B	90	10	CSO
78	8	3	15446	S23 E01	278	1800	2.5	20154	S23 W04	283	(BP)	4	M	60	9	CSO
78	8	4	15446	S23 W12	280	1800	3.0	20154	S22 W18	284	(BY)	4	B	50	3	CRO
78	8	5	15446	S23 W24	279	1600	3.0	20154	S22 W32	285	(AP)	4	B	80	9	CAO
78	8	6	15446	S23 W37	279	1600	3.0	20154	S23 W43	283	(B)	3	B	110	22	DAI
78	8	7	15446	S23 W55	278	900	3.0	20154	S22 W58	284	(BP)	4	B	110	8	CAO
78	8	8	15446	S23 W62	276	600	3.0		S22 W69				B	90	2	HSX
78	8	9	15446	S23 W76	276	500	2.0									

MCMATH REGION 15447 CMP DATE 5.4 RETURN OF REGION 15400 ROTATION 2

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
78	7	30	15447	S23 E82	240	600	1.0									
78	7	31	15447	S23 E66	244	1000	2.5									
78	8	1	15447	S22 E54	254	1000	2.5									
78	8	2	15447	S22 E40	254	700	2.5									
78	8	3	15447	S21 E25	254	600	2.0									
78	8	4	15447	S21 E12	256	600	2.0									
78	8	5	15447	S21 W01	256	600	2.0									
78	8	6	15447	S21 W14	256	500	1.5									
78	8	7	15447	S21 W30	253	600	1.5									
78	8	8	15447	S21 W40	254	300	1.5									
78	8	9	15447	S21 W54	254	400	1.0									
78	8	10	15447	S20 W66	254	400	1.0									

MCMATH REGION 15460 CMP DATE 8.0

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
78	8	10	15460	S31 W34	222	300	2.0									
78	8	11	15460	S31 W47	223	300	2.5									
78	8	12	15460	S31 W60	221	400	2.5									
78	8	13	15460	S30 W71	220	300	1.5									

MCMATH REGION 15452 CMP DATE 8.2

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
78	8	4	15452	S09 E49	219	100	1.5									

MCMATH REGION 15453 CMP DATE 8.2

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
78	8	4	15453	S19 E51	217	300	2.5	20157	S18 E47	219	(AP)	3	B	20	1	HRX
78	8	5	15453	S19 E38	217	300	2.5		S18 E34				B	0	2	BXO
78	8	6	15453	S19 E24	218	300	2.0	20163	S17 E20	220	(AP)	1	B	0	2	BXO
78	8	7	15453	S18 E05	218	400	2.0									
78	8	8	15453	S17 W03	217	400	1.5									
78	8	9	15453	S17 W17	217	300	1.0									

MCMATH REGION 15449 CMP DATE 8.3

				CALCIUM PLAGE DATA				SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
78	8	2	15449	S34 E90	204	400	1.0									
78	8	3	15449	S32 E65	214	500	2.0									
78	8	4	15449	S33 E53	215	500	2.0									
78	8	5	15449	S33 E40	215	500	2.0									
78	8	6	15449	S33 E26	216	400	1.5	20162	S31 E18	222	(AP)	1	B	10	3	BXO
78	8	7	15449	S32 E06	217	400	1.5									
78	8	8	15449	S31 W04	218	400	1.5									
78	8	9	15449	S31 W18	218	400	1.5									

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MCMATH REGION 15474 CMP DATE 8.3

			CALCIUM PLAGE DATA						SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
78	8	12	15474	S19 W56	217	300	3.5	20167	S20 W56	216	(B)	3	B	30	3	CRO
78	8	13	15474	S19 W69	218	800	3.5	20167	S21 W68	213	(AF)	3	B	80	7	CSO
78	8	14	15474	S19 W83	219	800	3.0	20167	S21 W80	214	AF	1	B	20	1	AXX

MCMATH REGION 15464 CMP DATE 9.2

			CALCIUM PLAGE DATA						SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
78	8	10	15464	S15 W18	206	100	1.5									
78	8	11	15464	S15 W31	207	100	1.5									

MCMATH REGION 15450 CMP DATE 9.3 RETURN OF REMNANTS OF REGION 15397 ROTATION 2

			CALCIUM PLAGE DATA						SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
78	8	3	15450	S23 E80	199	400	1.5									
78	8	4	15450	S23 E66	202	600	2.0	20158	S21 E61	205	(B)	2	B	10	2	BXO
78	8	5	15450	S22 E53	202	500	2.5	20158	S21 E50	203	(B)	1	B	0	3	BXO
78	8	6	15450	S22 E38	204	500	2.5		S21 E38				B	0	2	BXO
78	8	7	15450	S22 E19	204	400	1.5									

MCMATH REGION 15468 CMP DATE 9.4

			CALCIUM PLAGE DATA						SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
78	8	12	15468	N23 W42	203	300	2.5	20168	N21 W45	205	(AP)	2	B	10	3	BXO
78	8	13	15468	N23 W56	205	400	2.5	20168	N23 W58	203	(AF)	3	B	10	1	AXX
78	8	14	15468	N23 W69	205	400	2.5									
78	8	15	15468	N22 W85	207	400	1.5									

MCMATH REGION 15470 CMP DATE 9.6

			CALCIUM PLAGE DATA						SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
78	8	12	15470	S32 W39	200	300	3.0	20169	S32 W40	200	(B)	3	B	20	3	CRO
78	8	13	15470	S32 W50	199	600	3.0	20169	S33 W55	200	(B)	3	B	40	4	CSO
78	8	14	15470	S32 W62	198	1000	3.5	20169	S33 W67	201	(B)	3	B	20	3	BXO
78	8		15470					20173	S35 W61	195	(AF)	3				
78	8	15	15470	S33 W77	199	1000	2.5									

MCMATH REGION 15454 CMP DATE 10.7

			CALCIUM PLAGE DATA						SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
78	8	4	15454	S27 E85	183	1200	3.0	20159	S26 E77	189	(B)	2	B	60	3	BXO
78	8	5	15454	S27 E70	185	1500	2.5	20159	S27 E64	189	(B)	2	B	110	5	CAO
78	8	6	15454	S27 E56	186	2800	3.0	20159	S27 E53	187	(B)	3	B	130	21	EAI
78	8	7	15454	S27 E36	187	3000	3.0	20159	S27 E39	187	(B)	4	B	200	67	EAC
78	8	8	15454	S27 E28	186	3000	3.0		S26 E27				B	480	51	EAC
78	8	9	15454	S27 E15	185	2800	3.0	20159	S28 E12	188	(BY)	4	B	380	36	EAI
78	8	10	15454	S27 E02	186	3200	3.0	20159	S28 W01	188	(BY)	4	B	280	51	EAI
78	8	11	15454	S27 W10	186	3000	3.0	20159	S28 W14	188	(B)	4	B	150	25	ESI
78	8	12	15454	S27 W24	185	3000	3.0	20159	S27 W26	186	(B)	4	B	120	20	ESI
78	8	13	15454	S27 W36	185	3200	3.5	20159	S25 W40	185	(B)	4	B	120	18	DAI
78	8	14	15454	S26 W49	185	3200	3.5	20159	S26 W52	186	(BY)	4	B	140	14	DAI
78	8	15	15454	S26 W62	184	3300	3.5		S25 W61				B	190	8	DAI
78	8	16	15454	S26 W75	185	3500	3.0		S28 W69				M	170	7	DAO
78	8	17	15454	S26 W90	186	700	1.0									

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MCMATH REGION 15451 CMP DATE 11.1 RETURN OF REGION 15403 ROTATION 3

CALCIUM PLAGE DATA								SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
78	8	3	15451	N17 E90	189	400	1.5									
78	8	4	15451	N17 E80	188	3500	2.5	20160	N18 E85	181	X	1				
78	8	5	15451	N20 E69	186	3800	3.0	20160	N18 E75	178	(B)	2	B	40	3	CRO
78	8	6	15451	N20 E56	186	4200	3.5	20160	N19 E60	180	(B)	3	B	60	9	ERO
78	8		15451					20164	N16 E45	195	(AP)	2	B	0	2	BXO
78	8		15451					20165	N17 E67	173	(AP)	2				
78	8	7	15451	N19 E39	184	3800	3.0	20165	N16 E50	176	(AP)	3	B	10	4	BXO
78	8	8	15451	N20 E31	183	3400	3.0		N17 E38				B	10	3	BXO
78	8	9	15451	N20 E18	182	3500	3.0	20160	N18 E21	179	(B)	2				
78	8		15451					20164	N15 E10	190	(B)	2	B	30	9	BXI
78	8		15451					20165	N17 E30	170	(AP)	1	B	10	1	AXX
78	8	10	15451	N20 E08	180	3500	2.5	20164	N15 W04	191	(AP)	3	B	40	11	CRI
78	8		15451						N16 E17				B	10	6	AXX
78	8	11	15451	N20 W03	179	3500	3.0	20164	N15 W20	194	(BY)	3	B	20	11	CAO
78	8		15451					20166	N15 E04	170	(Y)	2	B	10	5	BXI
78	8	12	15451	N20 W17	178	3800	2.5	20164	N17 W31	191	(AP)	2				
78	8		15451					20166	N18 W10	170	(B)	3	B	10	3	BXO
78	8	13	15451	N20 W30	179	3800	3.0	20164	N16 W44	169	(AF)	3	B	20	6	BXO
78	8	14	15451	N21 W44	180	3500	3.0	20164	N15 W55	189	(AF)	2	B	0	2	AXX
78	8		15451					20166	N16 W35	169	(AF)	3	B	0	3	BXO
78	8		15451					20174	N26 W43	177	(AF)	2	B	0	1	AXX
78	8	15	15451	N21 W58	180	3500	2.5									
78	8	16	15451	N22 W70	180	2800	2.0									
78	8	17	15451	N22 W80	176	2500	2.0									
78	8	18	15451	N22 W90	173	900	1.0									

MCMATH REGION 15465 CMP DATE 12.1

CALCIUM PLAGE DATA								SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
78	8	10	15465	S12 E21	167	100	1.0									

MCMATH REGION 15457 CMP DATE 13.0 RETURN OF PART OF REGION 15410 ROTATION 3

CALCIUM PLAGE DATA								SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
78	8	6	15457	N10 E88	154	400	1.0									
78	8	7	15457	N10 E69	155	400	1.5									
78	8	8	15457	N10 E58	156	200	1.5									
78	8	9	15457	N10 E46	154	300	1.5									
78	8	10	15457	N11 E31	157	300	1.0									
78	8	11	15457	N11 E19	157	300	2.0									
78	8	12	15457	N12 E06	155	300	1.5									
78	8	13	15457	N12 W08	157	300	1.0									
78	8	14	15457	N12 W20	156	200	1.0									
78	8	15	15457	N12 W35	157	200	1.0		N11 W36				B	10	2	AXX
78	8	16	15457	N12 W48	158	200	1.0									

MCMATH REGION 15461 CMP DATE 13.5

CALCIUM PLAGE DATA								SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
78	8	7	15461	S22 E76	147	500	1.0									
78	8	8	15461	S21 E68	146	500	1.5									
78	8	9	15461	S21 E52	148	600	1.5									
78	8	10	15461	S21 E39	149	500	1.5									
78	8	11	15461	S21 E26	150	500	1.5									
78	8	12	15461	S21 E13	148	500	2.0									
78	8	13	15461	S20 E01	148	200	1.0									
78	8	14	15461	S20 W11	147	200	1.0									
78	8	15	15461	S20 W25	147	100	1.0									

MCMATH REGION 15469 CMP DATE 13.8

CALCIUM PLAGE DATA								SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
78	8	12	15469	N14 E16	145	200	2.0	20170	N14 E14	146	(B)	3	B	20	4	HRX
78	8	13	15469	N14 E04	145	300	1.5	20170	N14 W01	146	(B)	2	B	20	5	CRO
78	8	14	15469	N14 W10	146	200	1.5									
78	8	15	15469	N14 W26	148	200	1.0									

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MCMATH REGION 15469 (CONT) CMP DATE 13.8

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
78	8	16	15469	N15 W38	148	100	1.0									

MCMATH REGION 15458 CMP DATE 14.3

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
78	8	7	15458	N16 E87	136	300	1.0									
78	8	8	15458	N16 E80	134	300	2.0									
78	8	9	15458	N16 E64	136	200	2.0									
78	8	10	15458	N16 E50	138	400	1.0									

MCMATH REGION 15459 CMP DATE 14.4

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
78	8	7	15459	N06 E89	134	300	1.0									
78	8	8	15459	N06 E81	133	300	1.5									
78	8	9	15459	N06 E65	135	300	1.5									
78	8	10	15459	N06 E52	136	500	1.0									
78	8	11	15459	N06 E38	138	300	1.0									
78	8	12	15459	N07 E23	138	300	1.0									
78	8	13	15459	N07 E11	138	100	1.0									

MCMATH REGION 15467 CMP DATE 14.5

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
78	8	11	15467	N27 E38	138	200	2.0									
78	8	12	15467	N27 E25	136	100	1.5									
78	8	13	15467	N27 E13	136	100	1.5									
78	8	14	15467	N27 W01	137	300	2.5	20175	N25 W04	138	(BP)	3	B	10	6	BXO
78	8	15	15467	N27 W15	137	500	2.0		N25 W16				B	10	1	AXX
78	8	16	15467	N27 W26	136	400	2.5		N25 W23				H	10	1	HRX
78	8	17	15467	N25 W38	134	1000	3.0	20176	N21 W40	134	(BP)	4	B	90	15	CAO
78	8	18	15467	N24 W50	133	1100	2.5	20176	N21 W56	136	(BP)	4	H	80	10	DAO
78	8	19	15467	N24 W65	134	1200	2.5		N21 W64				B	80	7	DRO
78	8	20	15467	N24 W80	136	1200	2.5	20176	N20 W85	139	AP	3	B	60	1	HSX
78	8	21	15467	N24 W88	131	500	1.5									

MCMATH REGION 15481 CMP DATE 14.9

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
78	8	18	15481	S23 W48	131	100	1.5									
78	8	19	15481	S24 W63	132	100	1.5									

MCMATH REGION 15462 CMP DATE 15.1

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
78	8	9	15462	N11 E75	125	200	1.0									
78	8	10	15462	N10 E60	128	200	2.0									
78	8	11	15462	N10 E47	129	200	2.0									
78	8	12	15462	N10 E33	128	200	2.0		N10 E32				B	10	1	HRX
78	8	13	15462	N10 E20	129	300	1.5									
78	8	14	15462	N10 E07	129	400	1.5									
78	8	15	15462	N10 W06	128	300	1.5									
78	8	16	15462	N10 W19	129	400	2.0									
78	8	17	15462	N10 W32	128	200	2.0									
78	8	18	15462	N10 W45	128	100	1.0									
78	8	19	15462	N10 W60	129	100	1.0									

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MCMATH REGION 15463 CMP DATE 15.6 RETURN OF REGION 15415 ROTATION 2

CALCIUM PLAGE DATA | SUNSPOT DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
78	8	9	15463	N18 E78	122	300	1.0									
78	8	10	15463	N17 E66	122	600	1.5									
78	8	11	15463	N20 E54	122	1000	2.0									
78	8	12	15463	N21 E41	120	1000	2.0									
78	8	13	15463	N20 E29	120	800	2.0									
78	8	14	15463	N21 E14	122	700	1.5									
78	8	15	15463	N21 E00	122	700	1.5									
78	8	16	15463	N21 W13	123	800	1.5									
78	8	17	15463	N21 W25	121	800	2.0									
78	8	18	15463	N22 W38	121	700	2.0									
78	8	19	15463	N22 W52	121	600	1.5									
78	8	20	15463	N22 W66	122	600	1.5									
78	8	21	15463	N20 W74	117	400	1.0									

MCMATH REGION 15466 CMP DATE 16.6 RETURN OF REMNANTS OF REGIONS 15416 AND 15421 ROTATION 4

CALCIUM PLAGE DATA | SUNSPOT DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
78	8	10	15466	S23 E82	106	400	1.0									
78	8	11	15466	S23 E69	107	700	1.5									
78	8	12	15466	S22 E55	106	700	1.5									
78	8	13	15466	S22 E41	108	500	1.0									

MCMATH REGION 15471 CMP DATE 18.5

CALCIUM PLAGE DATA | SUNSPOT DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
78	8	13	15471	N44 E66	83	1100	4.0	20171	N44 E59	86	(B)	4	B	60	6	DRO
78	8	14	15471	N44 E52	84	1000	3.5	20171	N44 E47	87	(BP)	3	B	80	7	DAO
78	8	15	15471	N45 E37	85	1000	3.5		N43 E33				B	90	6	EAO
78	8	16	15471	N45 E26	84	1000	3.0		N45 E26				H	80	7	CAO
78	8	17	15471	N45 E13	83	1000	2.5	20171	N44 E03	91	(BP)	4	B	40	9	CSO
78	8	18	15471	N45 E01	82	1000	2.5	20171	N44 W11	91	(AP)	4	H	70	8	CSO
78	8	19	15471	N45 W11	80	900	2.5		N44 W21				B	20	2	HAX
78	8	20	15471	N45 W24	80	900	2.0	20171	N44 W36	90	(AP)	3	B	20	2	HAX
78	8	21	15471	N45 W37	80	1000	2.0	20171	N44 W50	89	(AP)	3	B	10	1	AXX
78	8	22	15471	N45 W50	79	800	2.0									
78	8	23	15471	N45 W62	79	800	1.5									
78	8	24	15471	N45 W74	75	900	1.5									
78	8	25	15471	N45 W87	78	900	1.5									
78	8	26	15471	N45 W90	68	400	1.0									

MCMATH REGION 15473 CMP DATE 19.3 RETURN OF PART OF REGION 15420 ROTATION 5

CALCIUM PLAGE DATA | SUNSPOT DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
78	8	13	15473	N22 E73	76	200	1.0									
78	8	14	15473	N23 E62	74	200	1.0									
78	8	15	15473	N22 E48	74	200	1.5									
78	8	16	15473	N22 E37	73	100	1.0									
78	8	17	15473	N22 E24	72	200	1.0									
78	8	18	15473	N22 E11	72	300	1.0									
78	8	19	15473	N22 W05	74	300	1.5									
78	8	20	15473	N22 W18	74	300	1.5									
78	8	21	15473	N21 W31	74	200	1.5									
78	8	22	15473	N21 W44	73	200	2.0									
78	8	23	15473	N21 W58	75	200	1.0									
78	8	24	15473	N21 W72	73	200	1.5									

MCMATH REGION 15472 CMP DATE 20.4 RETURN OF REGION 15442 ROTATION 2

CALCIUM PLAGE DATA | SUNSPOT DATA

YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
78	8	13	15472	N38 E85	64	900	3.5	20172	N37 E80	65	(AP)	2	B	50	2	CRO
78	8	14	15472	N38 E72	64	1200	4.0	20172	N37 E68	66	(B)	3	B	50	3	CRO
78	8	15	15472	N37 E59	63	1200	3.0		N36 E58				B	10	3	BXO
78	8	16	15472	N37 E48	62	1000	3.0		N36 E53				H	10	3	BXO
78	8	17	15472	N38 E35	61	1200	2.5									
78	8	18	15472	N38 E24	59	1000	2.5									
78	8	19	15472	N38 E11	58	700	2.0									

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MCMATH REGION 15472 (CONT) CMP DATE 20.4 RETURN OF REGION 15442 ROTATION 2

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
78	8	20	15472	N38 W05	61	600	2.0									
78	8	21	15472	N38 W18	61	500	2.0									
78	8	22	15472	N38 W30	59	500	2.0									
78	8	23	15472	N38 W43	60	600	1.5									
78	8	24	15472	N38 W56	57	600	1.5									
78	8	25	15472	N38 W70	61	1000	2.0									
78	8	26	15472	N38 W83	61	700	2.0									
78	8	27	15472	N38 W90	54	300	1.0									

MCMATH REGION 15476 CMP DATE 20.5 RETURN OF REGION 15429 ROTATION 3

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
78	8	14	15476	S28 E80	56	500	1.5									
78	8	15	15476	S27 E66	56	500	1.5									
78	8	16	15476	S28 E54	56	700	1.5									
78	8	17	15476	S27 E42	54	700	2.0									
78	8	18	15476	S27 E27	56	500	2.0									
78	8	19	15476	S27 E13	56	500	2.0									
78	8	20	15476	S27 E00	56	600	2.0									
78	8	21	15476	S27 W12	55	600	2.0									
78	8	22	15476	S27 W25	54	600	1.5									
78	8	23	15476	S27 W37	54	600	1.5									
78	8	24	15476	S27 W52	53	600	1.0									
78	8	25	15476	S27 W65	56	600	1.0									

MCMATH REGION 15478 CMP DATE 21.6 RETURN OF REGION 15428 ROTATION 3 AND 4

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
78	8	14	15478	N22 E85	51	300	1.0									
78	8	15	15478	N24 E73	49	800	1.0									
78	8	16	15478	N25 E60	50	1100	1.0									
78	8	17	15478	N25 E48	48	1200	1.5									
78	8	18	15478	N25 E38	45	1200	1.5									
78	8	19	15478	N25 E26	43	1300	1.5									
78	8	20	15478	N25 E14	42	1300	1.5									
78	8	21	15478	N25 E01	42	1500	1.5									
78	8	22	15478	N25 W14	43	1600	2.0	20180	N21 W10	36	(B)	3	B	20	5	CRO
78	8	23	15478	N25 W26	43	1600	2.0	20180	N21 W21	36	(B)	3	B	20	6	CRI
78	8	24	15478	N26 W38	39	1700	2.0	20180	N21 W32	35	(AF)	2	B	10	4	CRO
78	8	25	15478	N26 W50	41	1600	2.0	20180	N20 W45	36	(AF)	3	B	10	1	AXX
78	8		15478					20184	N26 W34	25	(AP)	3	B	0	1	AXX
78	8	26	15478	N26 W62	40	1400	1.5	20180	N22 W55	32	(AF)	3	B	10	1	AXX
78	8	27	15478	N26 W72	36	1000	1.5	20180	N23 W68	32	(AF)	2	B	0	1	AXX
78	8	28	15478	N26 W86	35	800	2.0									

MCMATH REGION 15477 CMP DATE 21.6

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
78	8	15	15477	S20 E80	42	1200	3.0		S21 E78				B	110	1	HAX
78	8	16	15477	S20 E66	44	1800	3.0		S19 E71				H	160	2	DAO
78	8	17	15477	S20 E54	42	1700	3.0	20177	S18 E49	45	(D)	4	B	180	2	DSO
78	8	18	15477	S19 E40	43	1800	3.0	20177	S19 E31	49	(BY)	4	H	160	3	EHO
78	8	19	15477	S19 E26	43	2000	3.0		S18 E23				B	190	5	CSO
78	8	20	15477	S19 E13	43	2000	2.5	20177	S19 E06	48	(BP)	5	B	190	3	CAO
78	8	21	15477	S19 W02	45	2000	3.0	20177	S19 W09	48	(BP)	4	B	170	16	CAO
78	8	22	15477	S19 W15	44	2000	3.0	20177	S19 W21	47	(BP)	4	B	160	6	CAO
78	8	23	15477	S19 W27	44	1700	2.5	20177	S18 W34	49	(BP)	4	B	110	7	CAO
78	8	24	15477	S19 W43	44	1700	2.5	20177	S18 W45	48	(AP)	5	B	90	6	CSO
78	8	25	15477	S19 W55	46	2000	2.5	20177	S19 W60	51	(AP)	4	B	110	1	HSX
78	8	26	15477	S19 W68	46	1800	2.5	20177	S18 W74	51	(AP)	2	B	110	1	HSX
78	8	27	15477	S19 W81	45	1200	1.5									

MCMATH REGION 15479 CMP DATE 23.3

			CALCIUM PLAGE DATA					SUNSPOT DATA							
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
78	8	17	15479	N11 E79	17	200	2.0									
78	8	18	15479	N12 E64	19	100	2.0									

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MCMATH REGION 15499 CMP DATE 23.5

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
78	8	26	15499	N55 W40	18	100	2.0									
78	8	27	15499	N55 W52	16	100	1.0									

MCMATH REGION 15483 CMP DATE 23.8

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
78	8	20	15483	S13 E43	13	100	1.5	20178	S13 E41	13	(B)	2				

MCMATH REGION 15484 CMP DATE 24.8

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
78	8	20	15484	S23 E56	0	200	2.5									
78	8	21	15484	S23 E42	1	200	3.0									
78	8	22	15484	S24 E29	0	400	2.0	20181	S26 E27	0	(AF)	2	B	10	2	AXX
78	8	23	15484	S24 E16	1	400	2.0		S22 E10				B	10	3	BXX
78	8	24	15484	S24 E02	0	300	2.0		S22 W01				B	0	1	AXX
78	8	25	15484	S24 W10	1	300	2.0									
78	8	26	15484	S25 W23	1	200	1.5									

MCMATH REGION 15504 CMP DATE 24.8

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
78	8	27	15504	S21 W36	0	700	2.5	20186	S20 W38	2	(B)	3	B	10	12	DRO
78	8	28	15504	S21 W49	358	800	2.5	20186	S20 W52	2	(B)	4	B	20	3	BXO
78	8	29	15504	S21 W62	0	1000	2.0	20186	S23 W59	356	(B)	3	B	10	2	BXO
78	8	30	15504	S21 W75	0	1200	2.0	20186	S22 W67	352	(AF)	3				
78	8	31	15504	S23 W82	354	600	2.0									

MCMATH REGION 15502 CMP DATE 25.3

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
78	8	27	15502	N13 W30	354	200	2.5	20187	N13 W31	355	(B)	3	B	20	4	BXO
78	8	28	15502	N12 W45	354	300	2.5									
78	8	29	15502	N12 W57	355	500	3.5	20187	N11 W58	355	(B)	4	B	50	4	CRC
78	8	30	15502	N11 W72	357	500	2.0	20187	N11 W75	0	(AP)	4	B	30	3	BXO
78	8	31	15502	N12 W85	357	500	2.5		N10 W88				R	10	1	AXX

MCMATH REGION 15511 CMP DATE 25.3

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
78	8	30	15511	S17 W70	355	100	2.0									
78	8	31	15511	S16 W83	355	100	1.5									

MCMATH REGION 15485 CMP DATE 25.9 RETURN OF REGION 15435 ROTATION 2

				CALCIUM PLAGE DATA					SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
78	8	20	15485	S20 E70	347	400	2.5									
78	8	21	15485	S20 E56	348	300	2.5									
78	8	22	15485	S20 E44	346	200	1.5									
78	8	23	15485	S20 E30	348	200	1.5									
78	8	24	15485	S20 E16	346	200	1.5									
78	8	25	15485	S20 E04	347	300	2.0									
78	8	26	15485	S20 W08	346	300	1.0									

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MCMATH REGION 15487 CMP DATE 26.7

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
78	8	21	15487	S25 E69	335	200	3.0	20179	S24 E62	338	(AP)	3	B	0	1	AXX
78	8	22	15487	S24 E56	334	500	2.5	20179	S24 E48	339	(AP)	3				
78	8	23	15487	S24 E43	335	600	2.0	20179	S25 E38	338	(B)	2	B	10	2	BXO
78	8	24	15487	S24 E27	335	600	2.0	20179	S24 E27	337	(B)	3	B	20	3	DRO
78	8	25	15487	S24 E14	337	900	3.0	20179	S24 E14	337	(B)	3	B	20	3	BXO
78	8	26	15487	S24 E02	336	800	2.5	20179	S24 W01	338	(B)	2	B	20	7	CRO
78	8	27	15487	S24 W11	335	700	2.0									
78	8	28	15487	S24 W26	335	600	2.0									
78	8	29	15487	S24 W37	335	700	2.0									
78	8	30	15487	S24 W50	335	600	2.0									
78	8	31	15487	S24 W63	335	600	1.5									
78	9	01	15487	S24 W77		700	1.0									

MCMATH REGION 15503 CMP DATE 27.2

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
78	8	27	15503	N59 W05	329	100	2.0									
78	8	28	15503	N59 W18	327	100	1.5									

MCMATH REGION 15490 CMP DATE 27.5

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
78	8	22	15490	S18 E69	321	300	2.5									
78	8	23	15490	S18 E54	324	300	2.5	20182	S19 E50	326	(AF)	3	B	10	1	AXO
78	8	24	15490	S18 E38	324	600	2.5	20182	S18 E37	327	(B)	4	B	60	16	DRI
78	8	25	15490	S18 E25	326	700	3.0	20182	S17 E24	327	(B)	4	B	20	7	BXO
78	8	26	15490	S18 E12	326	700	2.5	20182	S17 E12	325	(AF)	3	B	20	6	BXO
78	8	27	15490	S18 W01	325	700	2.0	20182	S17 W03	327	(AF)	2	B	10	6	BXO
78	8	28	15490	S18 W16	325	500	2.0	20182	S18 W14	324	(AF)	2	B	0	5	BXO
78	8	29	15490	S18 W28	326	500	2.0									
78	8	30	15490	S18 W41	326	500	2.0									
78	8	31	15490	S18 W54	326	400	1.5									
78	9	01	15490	S19 W67		500	1.0									
78	9	02	15490	S18 W80		200	1.0									

MCMATH REGION 15491 CMP DATE 27.5

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
78	8	23	15491	N21 E51	327	200	1.0									
78	8	24	15491	N21 E37	325	200	1.0									
78	8	25	15491	N21 E25	326	100	1.0									
78	8	26	15491	N20 E12	326	200	1.0									
78	8	27	15491	N21 W01	325	200	1.0									
78	8	28	15491	N20 W16	325	200	1.0									
78	8	29	15491	N20 W28	326	200	1.0									
78	8	30	15491	N20 W42	327	200	1.5		N20 W41				B	0	1	AXX
78	8	31	15491	N20 W56	328	200	1.0									

MCMATH REGION 15513 CMP DATE 28.1

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
78	8	31	15513	N23 W46	318	200	1.5									
78	9	01	15513	N23 W59		200	2.0		N22 W63				B	0	1	A
78	9	02	15513	N22 W72		200	2.0									
78	9	03	15513	N23 W82		100	2.0									

MCMATH REGION 15494 CMP DATE 29.2

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
78	8	24	15494	N10 E60	302	100	2.5	20183	N10 E58	306	(AF)	3	B	0	1	AXX
78	8	25	15494	N10 E48	303	200	2.0	20183	N10 E45	306	(AF)	2				
78	8	26	15494	N10 E35	303	200	2.0	20183	N10 E34	303	(B)	3	B	20	4	BXO

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AUGUST 1978

MCMATH REGION 15494 (CONT) CMP DATE 29.2

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
78	8	27	15494	N10 E21	303	300	2.5	20183	N11 E21	303	(B)	3	B	20	12	BXO
78	8	28	15494	N09 E07	302	300	2.5	20183	N10 E07	303	(AP)	3	B	0	4	BXO
78	8	29	15494	N09 W05	303	300	2.0									
78	8	30	15494	N09 W19	304	200	1.5									
78	8	31	15494	N10 W31	303	200	3.5									
78	9	01	15494	N10 W44		100	1.0									
78	9	02	15494	N10 W58		100	1.5									

MCMATH REGION 15492 CMP DATE 29.7

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
78	8	24	15492	S17 E66	296	100	2.0									
78	8	25	15492	S16 E54	297	100	1.5									

MCMATH REGION 15493 CMP DATE 30.1

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
78	8	23	15493	N16 E90	288	500	2.0									
78	8	24	15493	N16 E75	287	600	2.5									
78	8	25	15493	N16 E63	288	600	3.0									
78	8	26	15493	N17 E49	289	800	2.5									
78	8	27	15493	N17 E35	289	800	2.5									
78	8	28	15493	N17 E20	289	500	2.0									
78	8	29	15493	N17 E08	290	300	2.0	20188	N15 E05	292	(AP)	3				
78	8	30	15493	N17 W05	290	300	1.5									
78	8	31	15493	N17 W18	290	400	2.5									
78	9	01	15493	N17 W32		400	2.0	20192	N16 W35		(AP)	3	B	0	2	A
78	9	02	15493	N16 W45		400	2.0		N13 W53				B	10	1	A
78	9	03	15493	N17 W58		400	2.0									
78	9	04	15493	N16 W71		200	1.0									

MCMATH REGION 15498 CMP DATE 30.9 RETURN OF REMNANTS OF REGION 15446 ROTATION 2

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
78	8	25	15498	S20 E70	281	500	1.5									
78	8	26	15498	S21 E58	280	400	2.0									
78	8	27	15498	S21 E44	280	200	2.0									
78	8	28	15498	S20 E29	280	300	1.5									
78	8	29	15498	S21 E17	281	200	1.0									
78	8	30	15498	S21 E04	281	100	1.0									
78	8	31	15498	S21 W09	281	200	1.0									
78	9	01	15498	S21 W22		300	1.0									
78	9	02	15498	S20 W37		300	1.0									
78	9	03	15498	S20 W49		300	1.0									
78	9	04	15498	S19 W60		300	1.0									

MCMATH REGION 15514 CMP DATE 31.2

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
78	8	31	15514	N14 W04	276	100	2.0									

MCMATH REGION 15506 CMP DATE 31.5

				CALCIUM PLAGE DATA				SUNSPOT DATA								
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H	STA	AREA	CNT	CLASS
78	8	28	15506	S26 E37	272	300	1.0									
78	8	29	15506	S26 E25	273	200	1.0									
78	8	30	15506	S26 E12	273	100	1.0									

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MCMATH REGION 15500 CMP DATE 31.9

			CALCIUM PLAGE DATA					SUNSPOT DATA						
YR	MO	DA	MC NO.	LAT CMD	L	AREA	INT	MW NO.	LAT CMD	L	MAG.	H STA	AREA	CNT CLASS
78	8	25	15500	N38 E80	271	200	1.0							
78	8	26	15500	N38 E68	270	400	1.5							
78	8	27	15500	N38 E55	269	400	1.0							
78	8	28	15500	N39 E42	267	500	1.0							
78	8	29	15500	N39 E31	267	400	1.0							

Note: Calcium spectroheliograms were secured at the McMath-Hulbert Observatory every day of August 1978.
No sunspot observations were made at Mt. Wilson on August 8, 15, 16 and 19, 1978.

DAILY CALCIUM PLAGE INDEX

AUGUST 1978

YR	MO	DAY	INDEX	YR	MO	DAY	INDEX	YR	MO	DAY	INDEX
78	8	1	15.2	78	8	11	21.6	78	8	21	11.9
78	8	2	16.6	78	8	12	22.2	78	8	22	12.3
78	8	3	15.6	78	8	13	24.2	78	8	23	10.1
78	8	4	19.0	78	8	14	20.8	78	8	24	9.8
78	8	5	19.3	78	8	15	16.4	78	8	25	11.9
78	8	6	22.1	78	8	16	13.1	78	8	26	9.6
78	8	7	20.8	78	8	17	13.0	78	8	27	9.6
78	8	8	18.7	78	8	18	12.6	78	8	28	10.0
78	8	9	19.2	78	8	19	12.3	78	8	29	11.0
78	8	10	19.4	78	8	20	11.2	78	8	30	10.0
								78	8	31	16.7

* NO OBSERVATIONS

SUDDEN IONOSPHERIC DISTURBANCES

AUGUST 1978

DAY	UNIVERSAL TIME START	END	MAX	IMP	WIDE SPREAD INDEX	NUMBER OF STATION REPORTS BY TYPE SWF	SCNA	SEA	SPA	LF-SPA	SES	SFD	KNOWN FLARE	McMATH REGION
03	1000	1033	1015	1-	1				1		1		0957	X-RAY
05	1345	1442	1356	1-	1				1		1		1349	15446
07	1045	1130D	1130	1-	1				1		1		1050E	15454
07	1755	1927	1804	1-	5	1			2	1	12		1253	X-RAY
07	2310	0027	2323	1-	5	1			1		7		2311	15454
11	0957	1050	1020	1-	1				1		1		1003E	15454
11	1050	1152	1-	1					1		1		1103E	15454
13	1157	1245	1220	1-	5			2	1		1		1158	15453
13	1221	1300	1231	1-	1				1		1		1221	15474
13	1803	1837	1809	1-	5	1			1		9		1755	15474
14	0006	0113	0025	1-	1				1				0003	X-RAY
14	0607	0706	0622	1-	1				1				0609	X-RAY
14	0822	0955	0906	1-	5			2	1				0825E	15474
14	1737	1824	1742	1-	5			1			10		1736	15454
14	2100	2120	2106	1-	3						2		2056	X-RAY
15	1014	1126	1022	1	5	1		3	1		1		1014E	15454
15	1543	1640	1557	1	5	2		2			8		1547	15454
15	1839	1912	1842	1-	5	1					3		1827	15472
16	0625	0725	0643	1-	1				1				0621	15471
16	1325	1520	1340	2	5	2	1	1	2		14		1326	15454
17	0341	0408	0348	1-	1				1				0343	15471
17	1940	2020U	1946	1-	1	1							1943	15477
18	1414	1443	1421	1-	1			1					1419	15477
26	2155	2220	2200	1-	1						1		2152	15496
27	0137	0208	0139	1-	1				1				0135	X-RAY
27	0240	0306	0249	1-	1				1				*	
27	0916E	1015D	0928	1-	5				3				0909	X-RAY
27	1216	1313	1240	1-	1				1		1		1214	15496
27	1603	1728	1632	1-	5	3	2	1	1	1	7		1559	15496
27	1846	1945	1856	1-	5	1			1		6		1841	15496
27	2039	2102	2042	1-	5	2		1	2		6		2036	15496
28	0344	0412	0353	1-	1				1				0343	15496
28	0533	0625	0543	1-	1				1				0533	X-RAY
29	0102	0236	0133	1-	1				1				0059	X-RAY
29	0605	0632	0613	1-	1				1				0602	X-RAY
29	1805	1830D	1808	1-	1						1		1803	15508
29	2038	2050	2043	1-	1				1		1		2025	15508
30	1417	1507	1444	1-	1				1		1		1418	15508
30	1537	1726	1550	2	5	5	2	2	2		14		1530	15508
30	2242	2314	2245	1-	1				1				2238	15509
31	0340	0525D	0417	1-	5			1	1		1		0339	X-RAY
31	0524E	0730	0535	2	5	1		1	1		1		0527	15508
31	1532	1638	1550	1	5	2					7		NF	
31	1700	1750	1707	1-	5	1			7		2		1657	15510

PERIODS OF NO OBSERVATIONS:

DATE	TIME (UT) and STATION
01	1003-1317 UM (16 kHz)
03-07	0000-2400 A5
07-08	0000-2400 TN
08	1056-1328 UM (16 kHz)
15	1011-1332 UM (16 kHz)
16	1200-1645 CL
19	1500-1630 CL
22	1004-1345 UM (16 kHz)
23	0800-0900 CL, 0808-0820 UM (16 kHz)
24-31	0000-2400 A45
26	0804-0821 UM (13 kHz), 0807-0815 UM (16 kHz)
	1449-1610 TM
29	1008-1346 UM (16 kHz), 1012-1346 UM (13 kHz)

SUDDEN IONOSPHERIC DISTURBANCES

AUGUST 1978

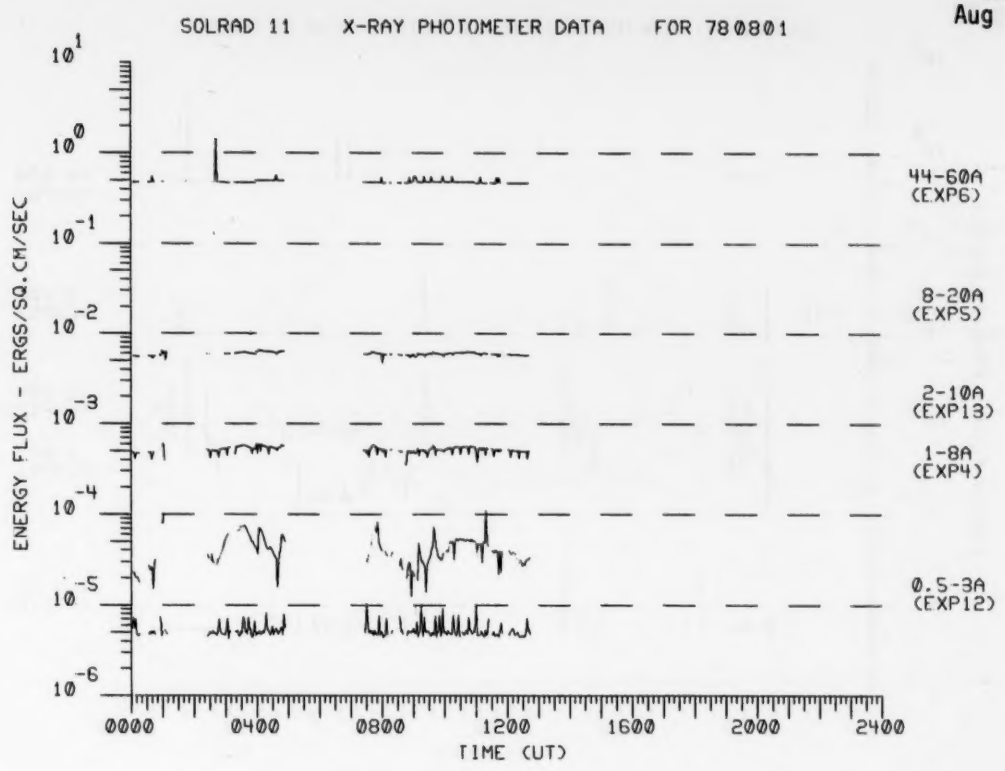
STATIONS REPORTING FOR AUGUST 1978

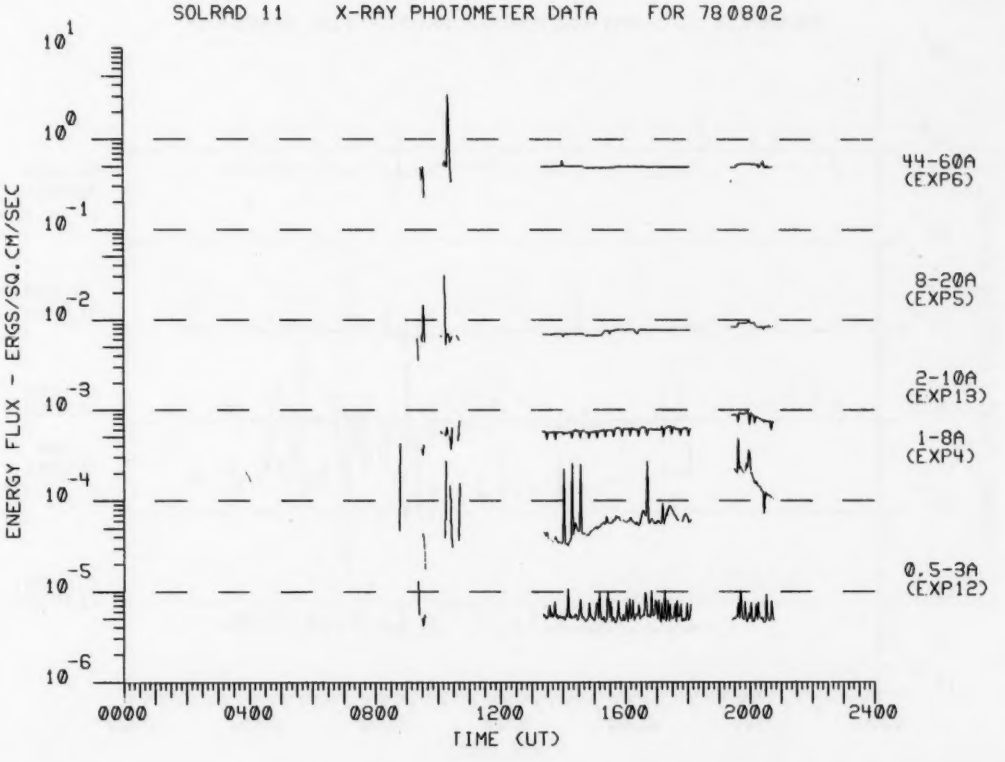
AAVSO (A1, A3, A5, A19, A21, A26, A28, A31, A34, A37, A45) (SES)
(A1, A31) (SEA) (A31) (SWF)
CHILWORTH (CL) (SCNA)
DARMSTADT (DA) (SWF)
HERSTMONCEUX (HC) (SEA)
HIRAISO (HI) (SWF)
HOBART (TA) (SEA, SES)
HUANCAYO (HU) (SWF)
INUBO (IN) (SPA)
MC MATH (MC) (SWF, SCNA)
NEW JERSEY (NJ) (SPA)
PANSKA VES (PU) (SWF, SEA, SES)
SAO PAULO (UM) (SES, SPA)
SOFIA (SF) (SES)
ST CLOUD (SC) (SES)
TABLE MOUNTAIN (TM) (SPA, LF-SPA)
TORINO (TN) (SPA)
UPICE (UI) (SEA)
VSETIN (VS) (SEA)

SIDs BY McMATH REGION

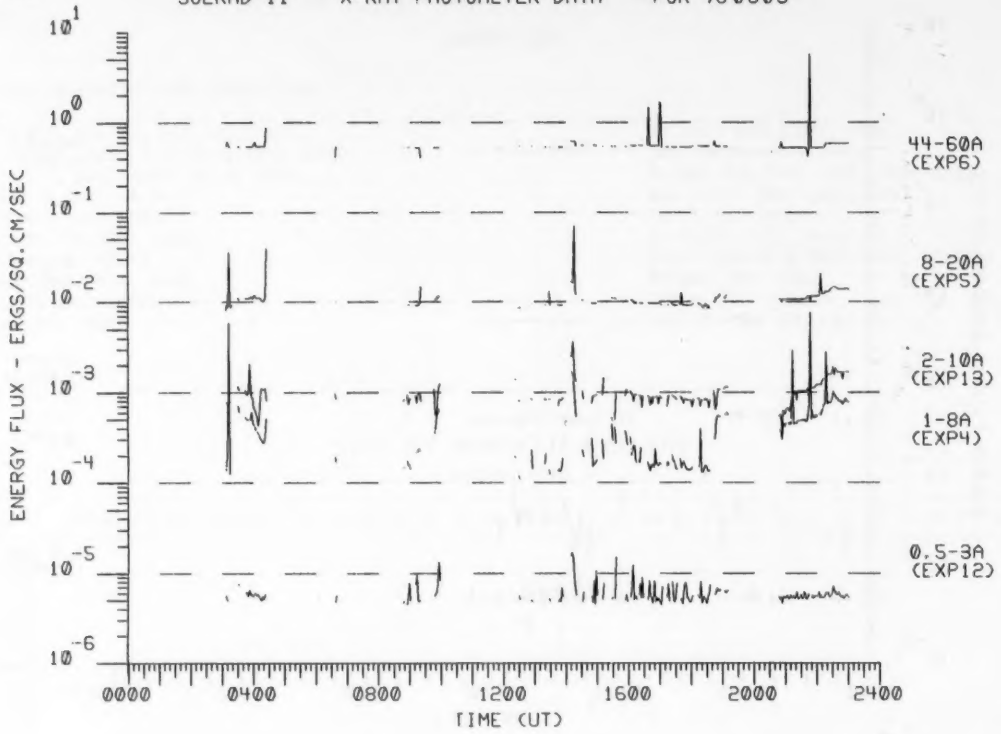
AUGUST 1978

DAY	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
REGION																															
15446					1																										
15453													1																		
15454							2				2			1	2	1															
15471																1	1														
15472															1																
15474													2	1																	
15477																	1	1													
15496																										1	4	1			
15508																													2	2	1
15509																														1	
15510																															1
X-RAY			1				1							3													2	1	2		1
UNKNOWN																															1
NO FP																											1				

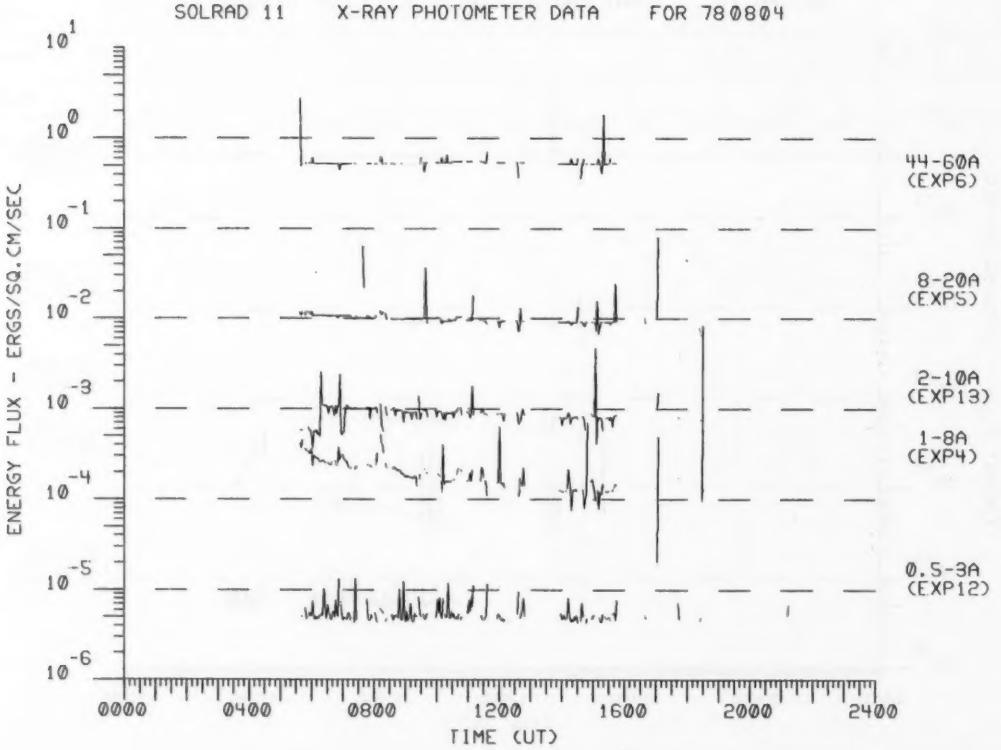

SOLRAD 11 X-RAY PHOTOMETER DATA FOR 780801
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)

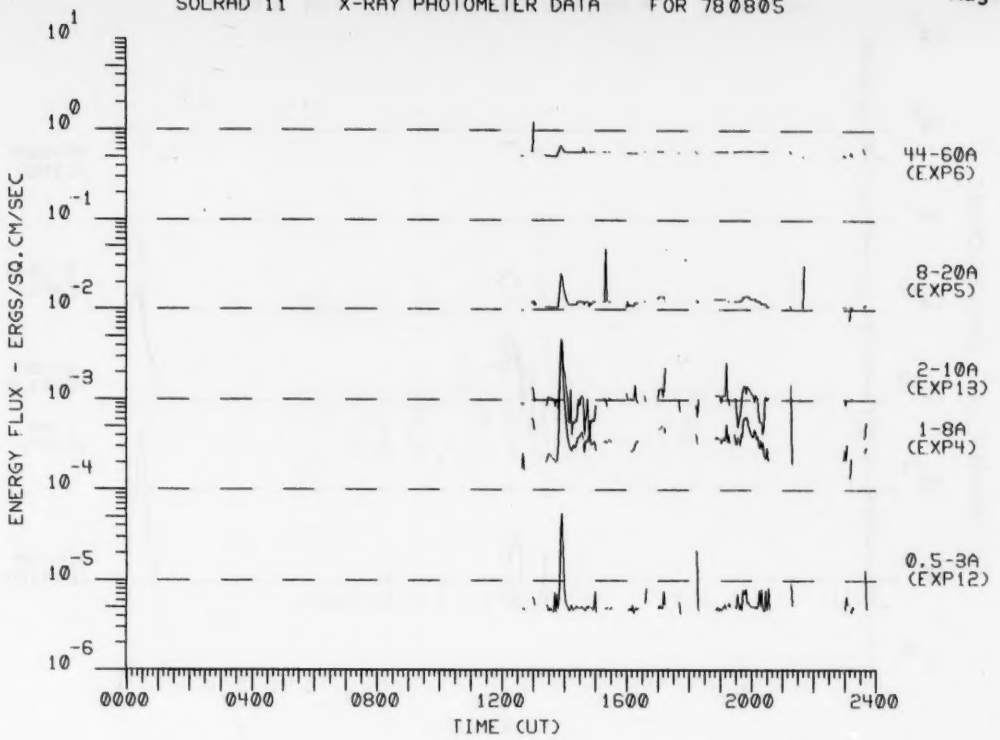

SOLRAD 11 X-RAY PHOTOMETER DATA FOR 780802
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)

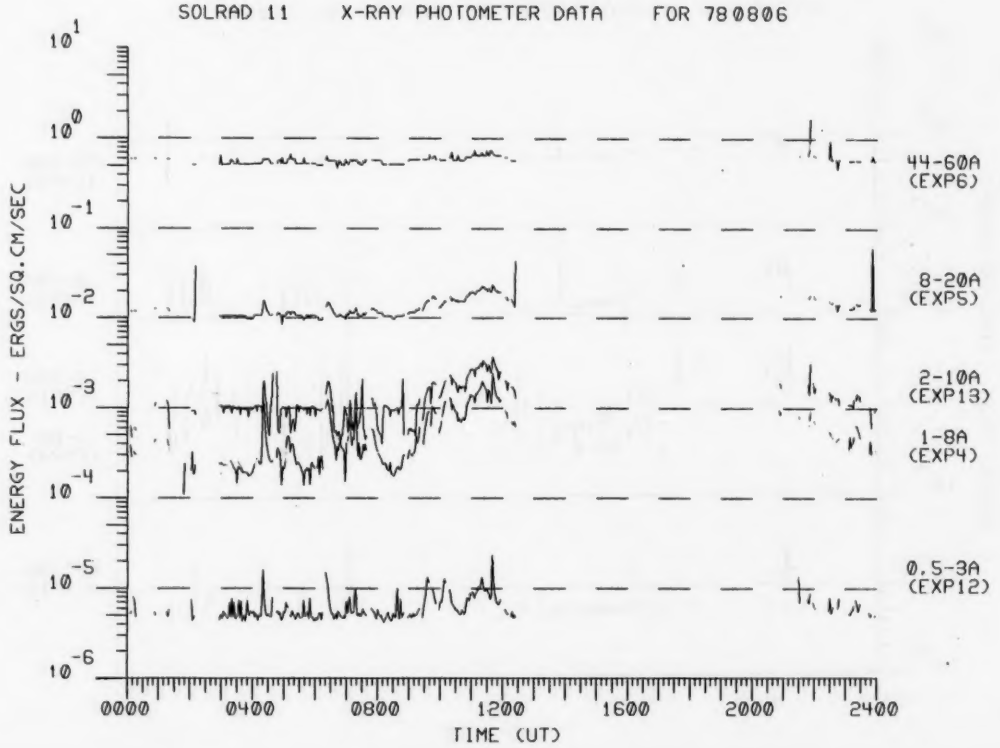
SOLRAD 11 X-RAY PHOTOMETER DATA FOR 780803



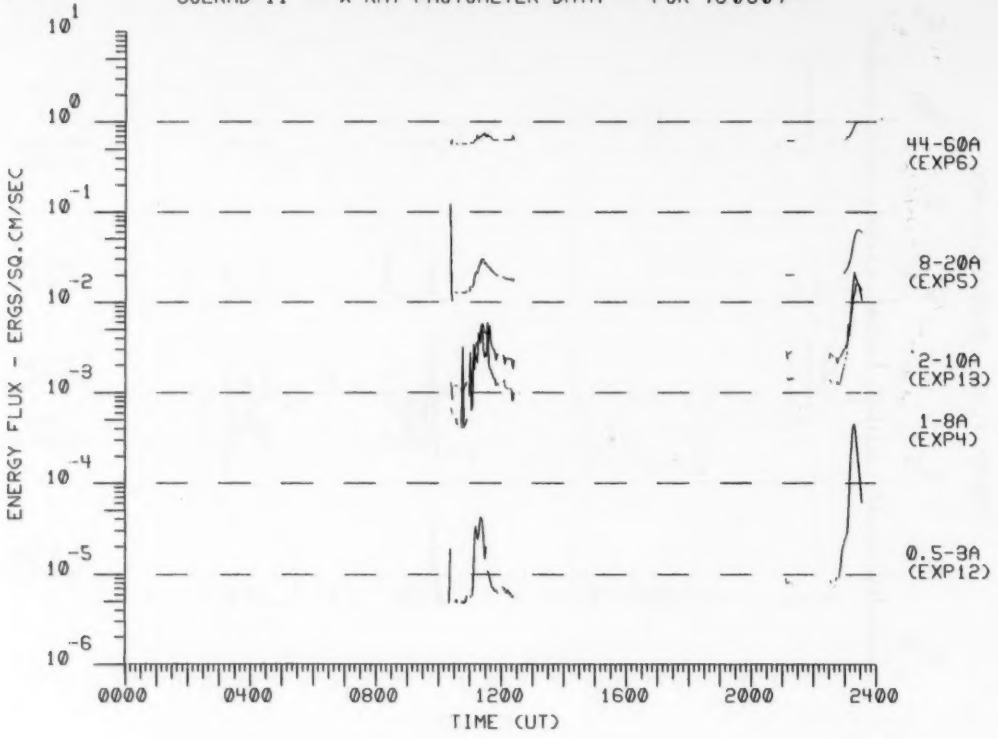
SOLRAD 11 X-RAY PHOTOMETER DATA FOR 780804



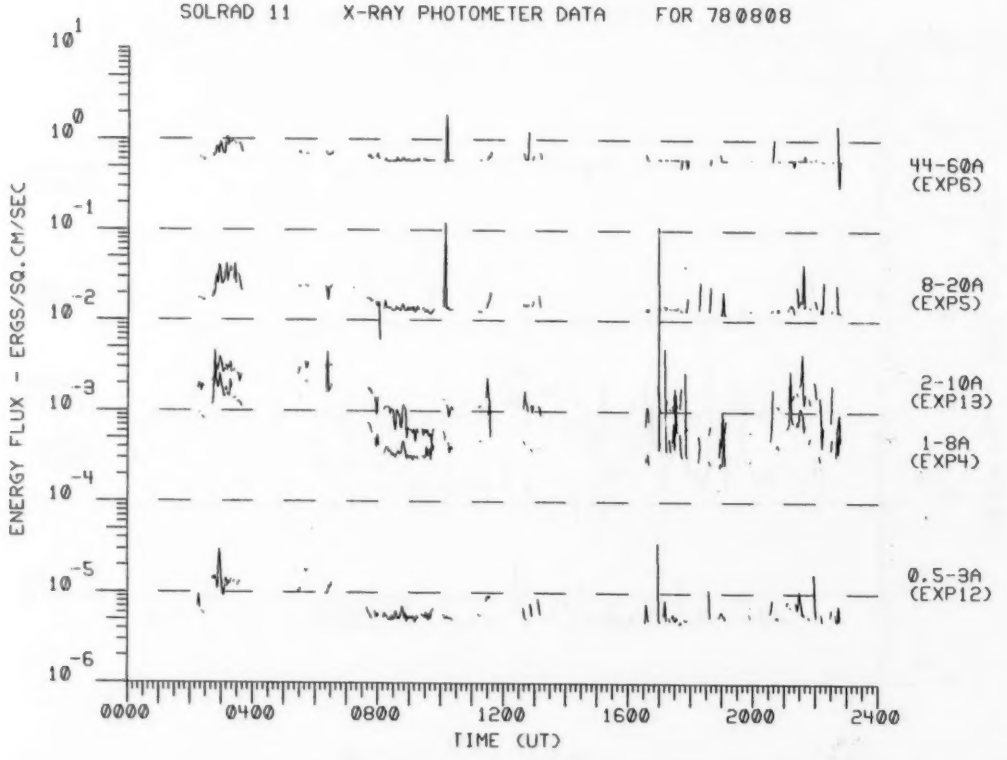

SOLRAD 11 X-RAY PHOTOMETER DATA FOR 780805
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)


SOLRAD 11 X-RAY PHOTOMETER DATA FOR 780806
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)

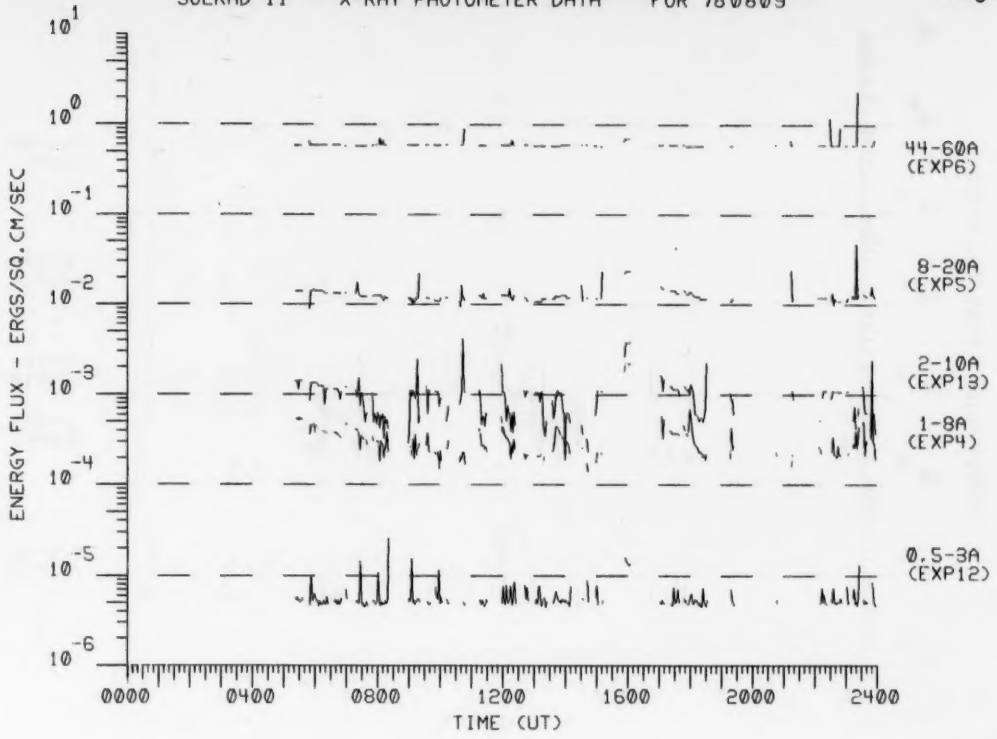
SOLRAD 11 X-RAY PHOTOMETER DATA FOR 780807



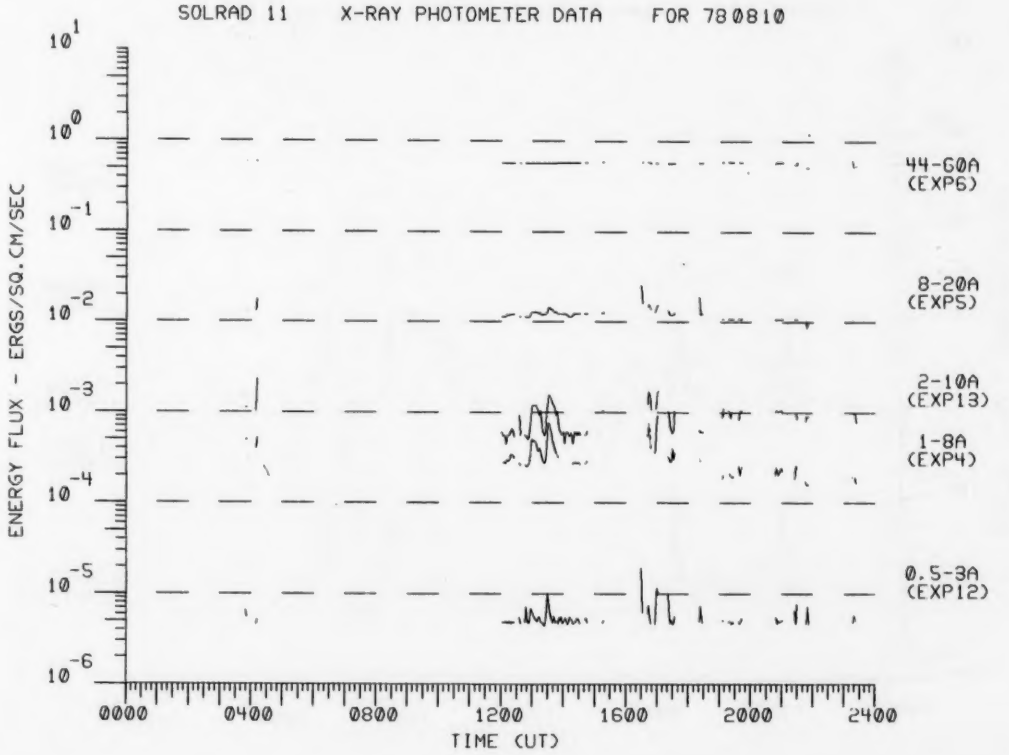
SOLRAD 11 X-RAY PHOTOMETER DATA FOR 780808

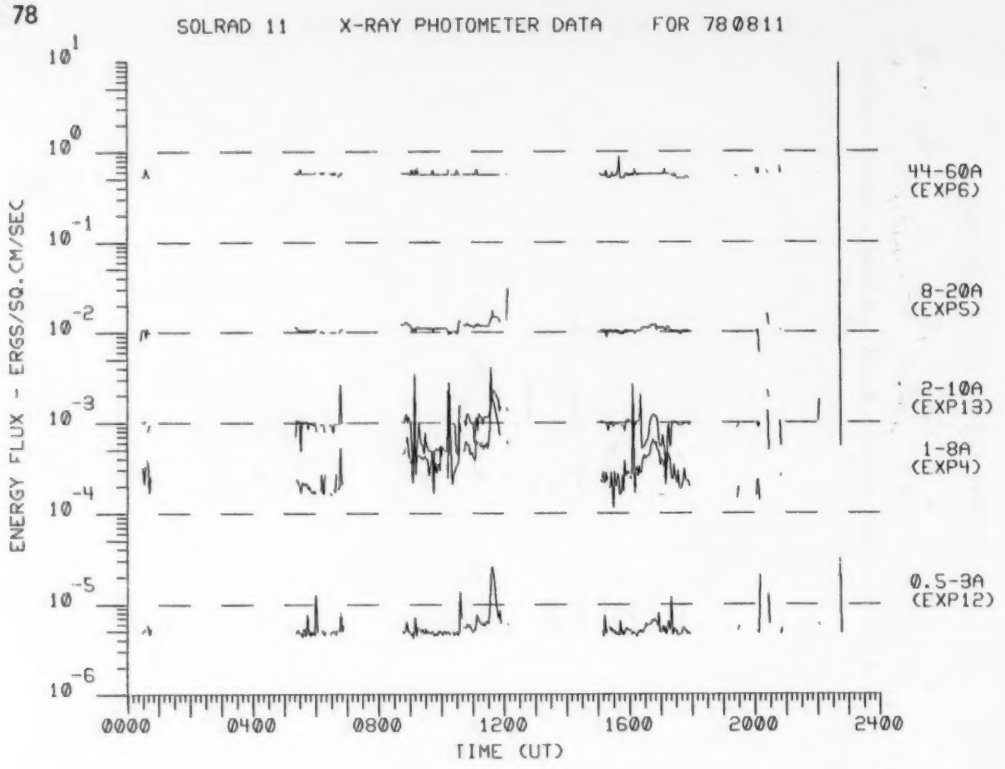


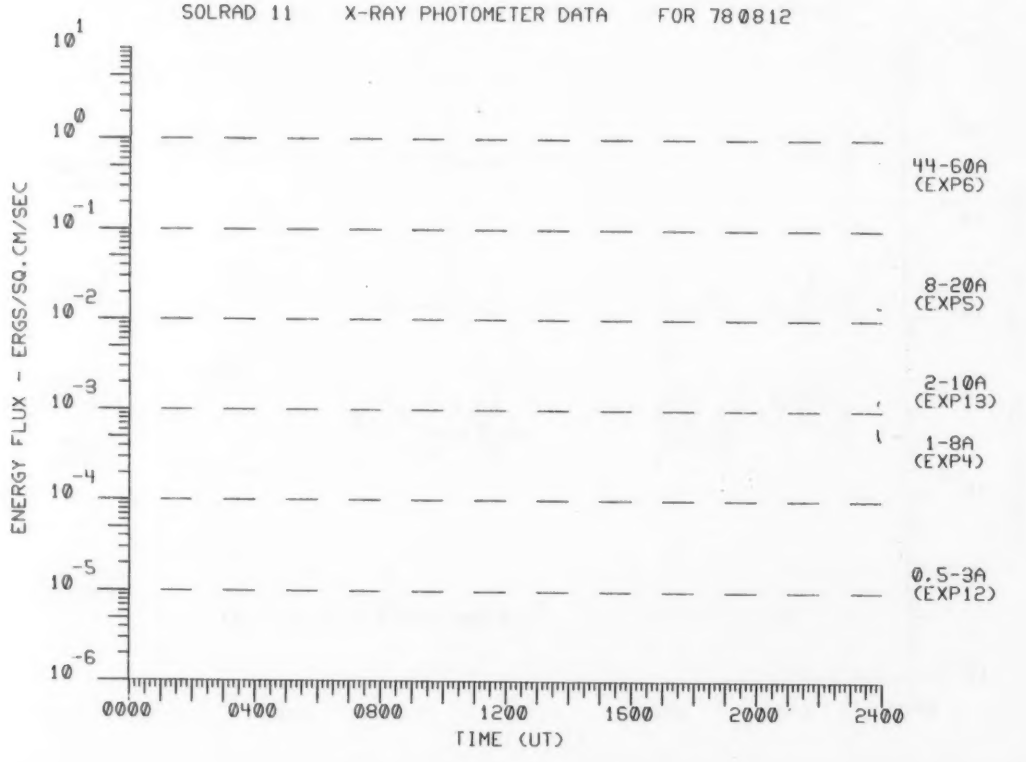
SOLRAD 11 X-RAY PHOTOMETER DATA FOR 780809



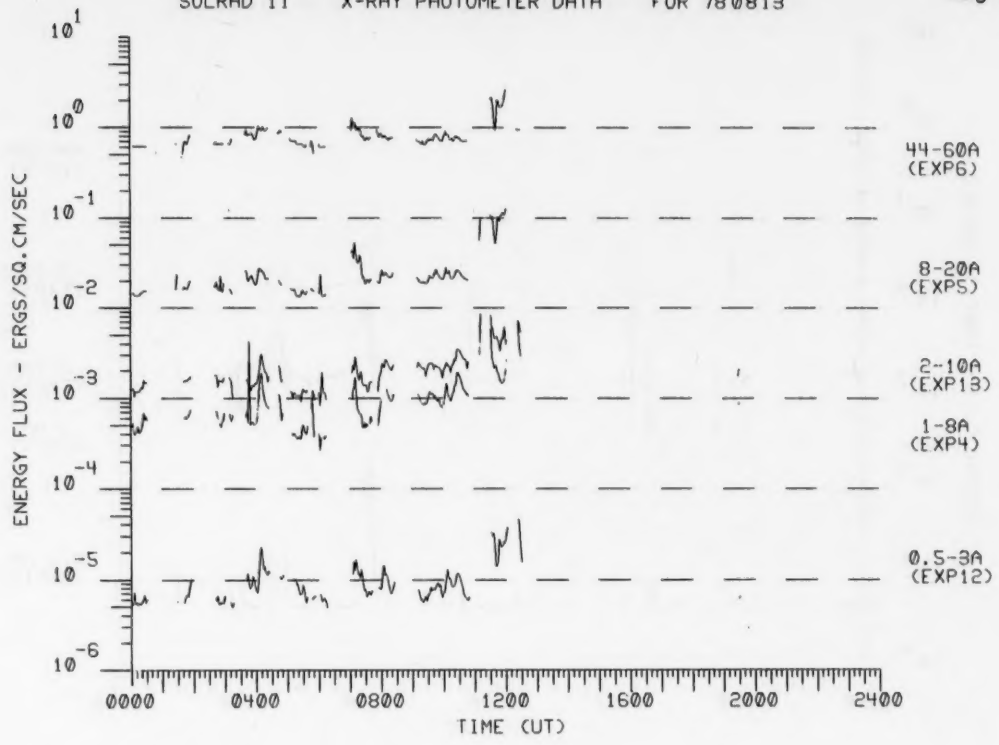
SOLRAD 11 X-RAY PHOTOMETER DATA FOR 780810



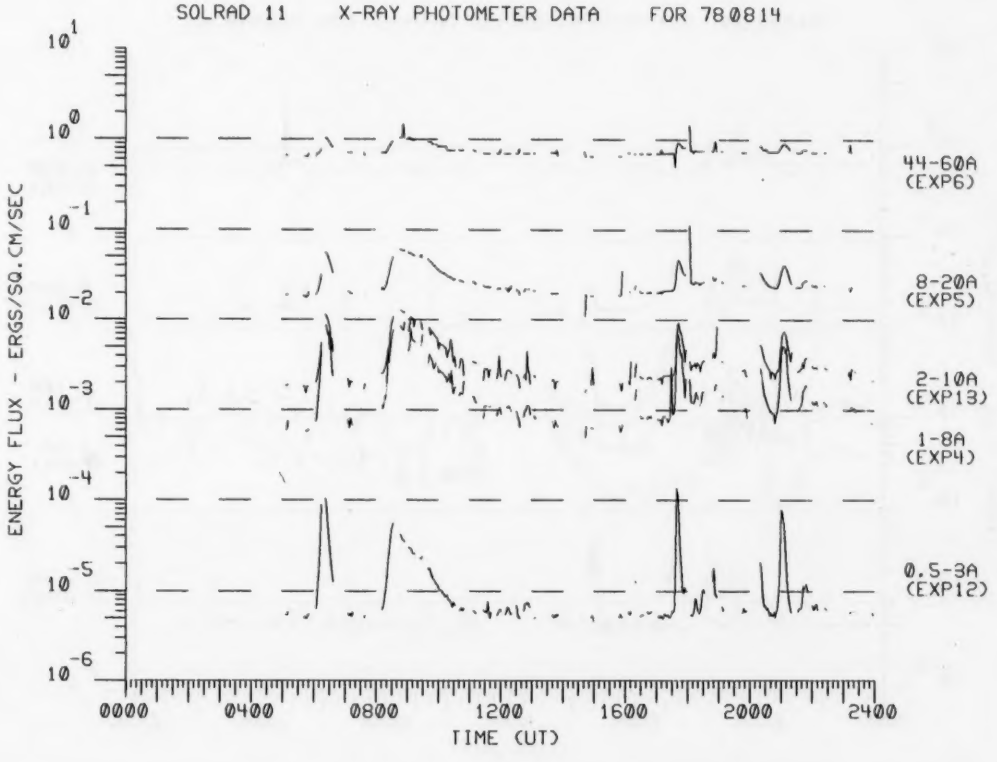

SOLRAD 11 X-RAY PHOTOMETER DATA FOR 780811
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)

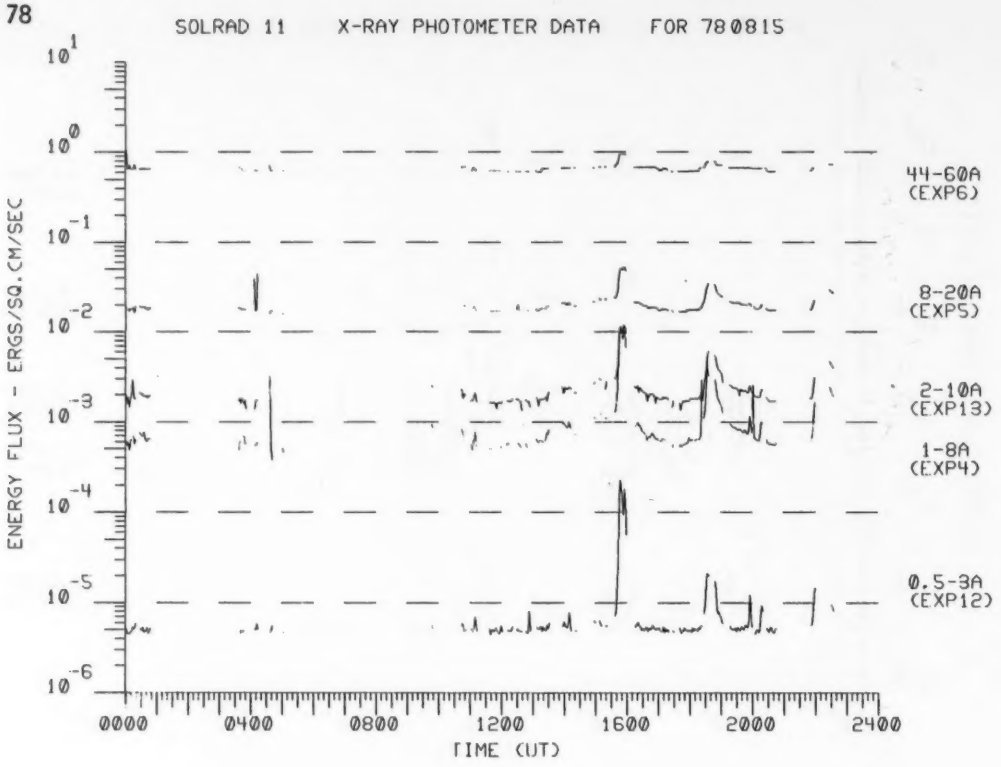

SOLRAD 11 X-RAY PHOTOMETER DATA FOR 780812
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)

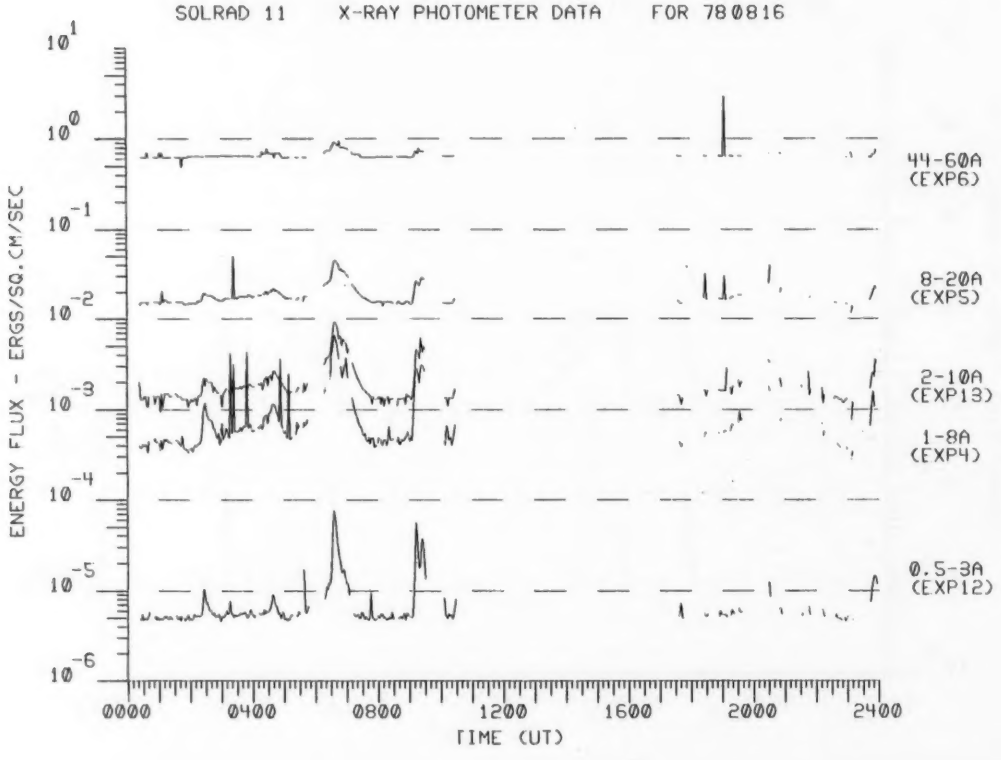
SOLRAD 11 X-RAY PHOTOMETER DATA FOR 780813



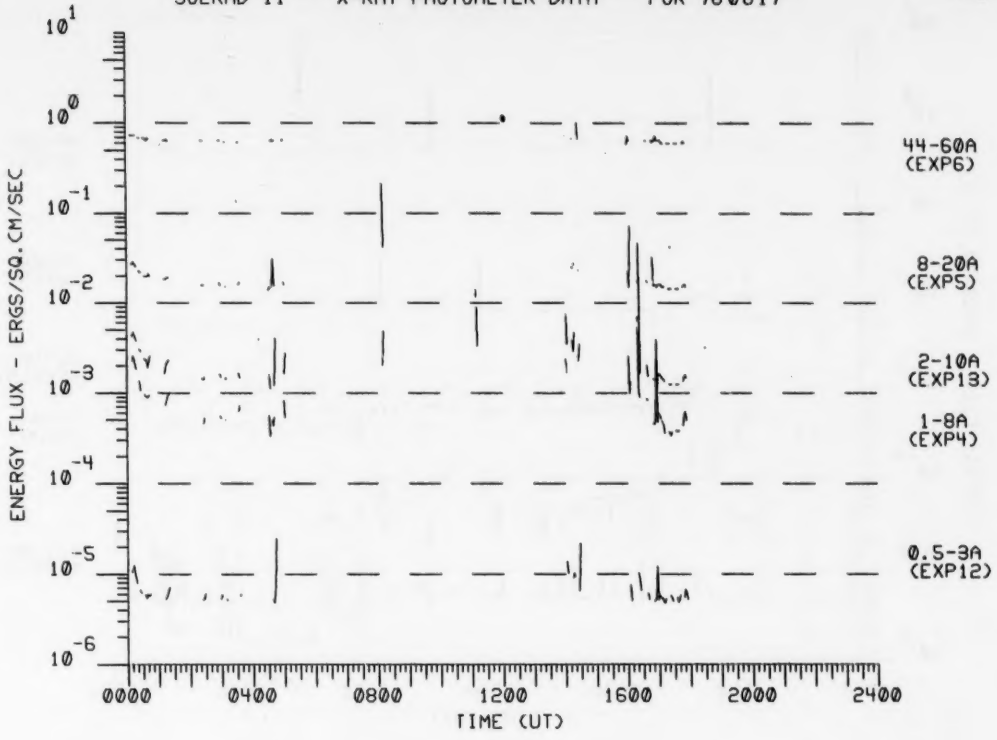
SOLRAD 11 X-RAY PHOTOMETER DATA FOR 780814



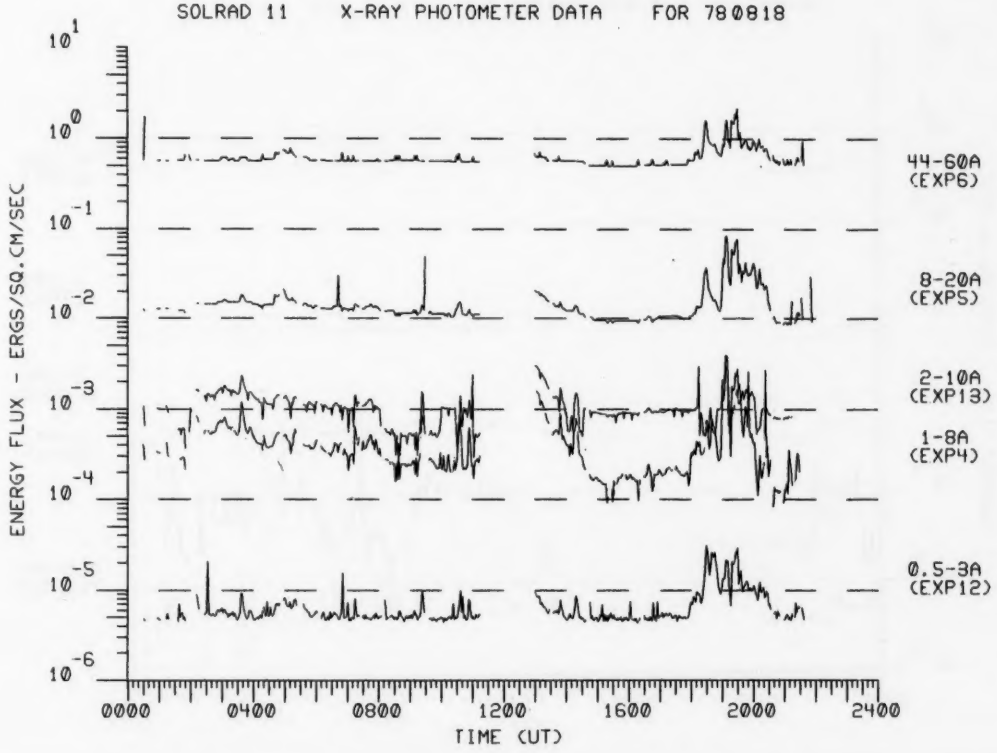

SOLRAD 11 X-RAY PHOTOMETER DATA FOR 780815
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)

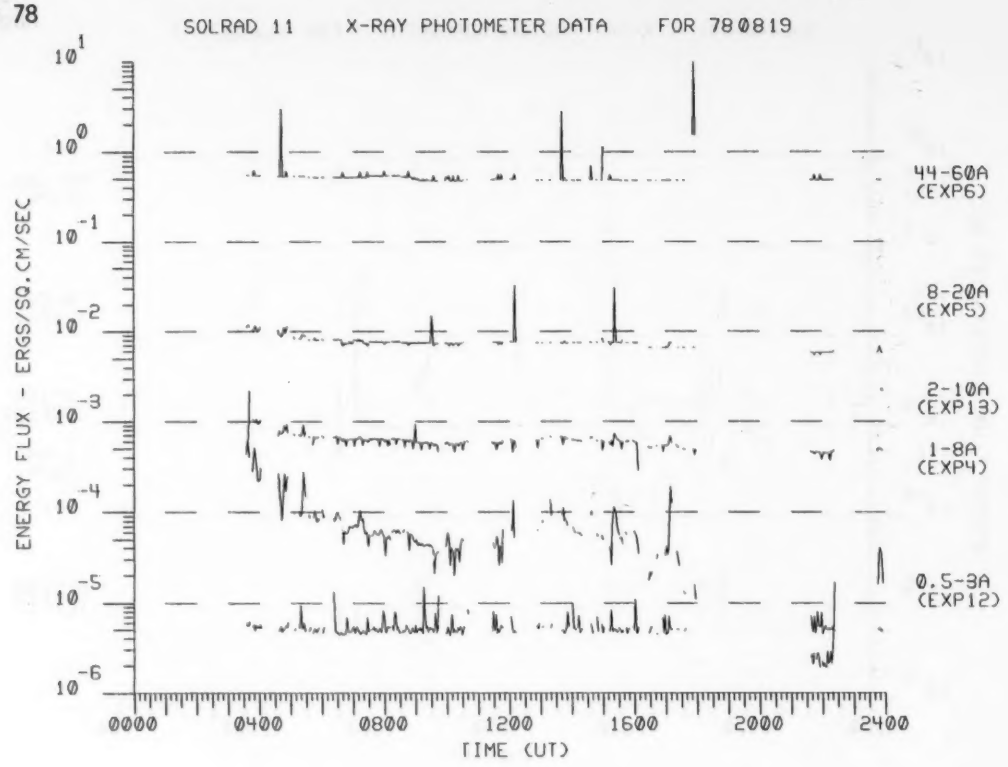

SOLRAD 11 X-RAY PHOTOMETER DATA FOR 780816
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
N
W
0000
0400
0800
1200
1600
2000
2400
TIME (UT)

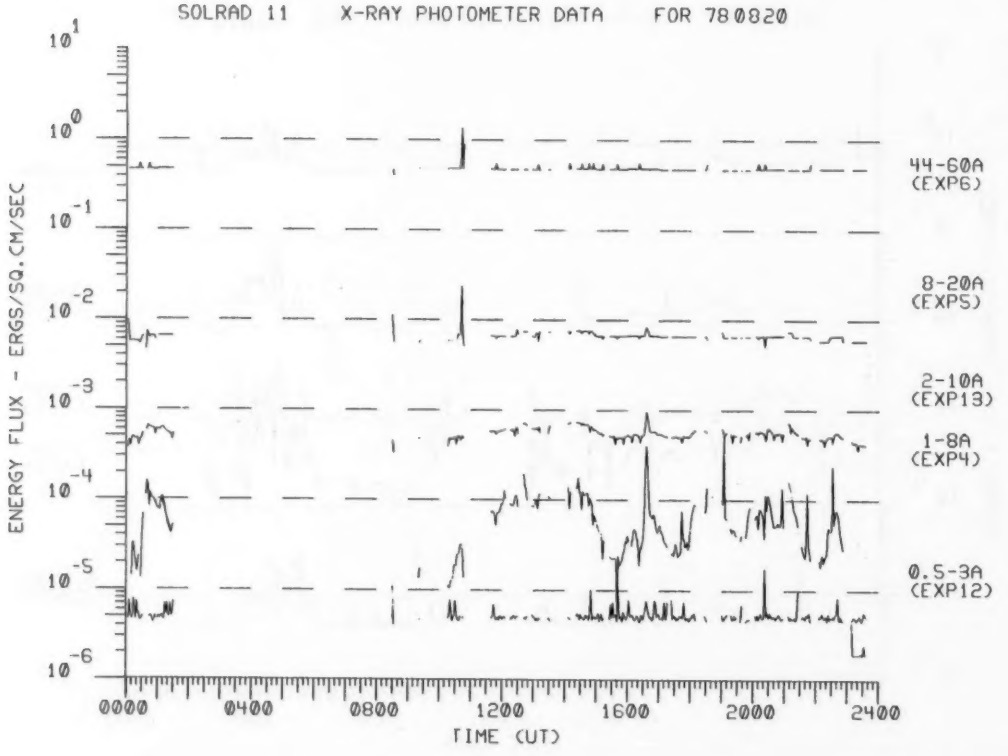
SOLRAD 11 X-RAY PHOTOMETER DATA FOR 780817



SOLRAD 11 X-RAY PHOTOMETER DATA FOR 780818




SOLRAD 11 X-RAY PHOTOMETER DATA FOR 780819
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)


SOLRAD 11 X-RAY PHOTOMETER DATA FOR 780820
ENERGY FLUX - ERGS/SQ.CM/SEC
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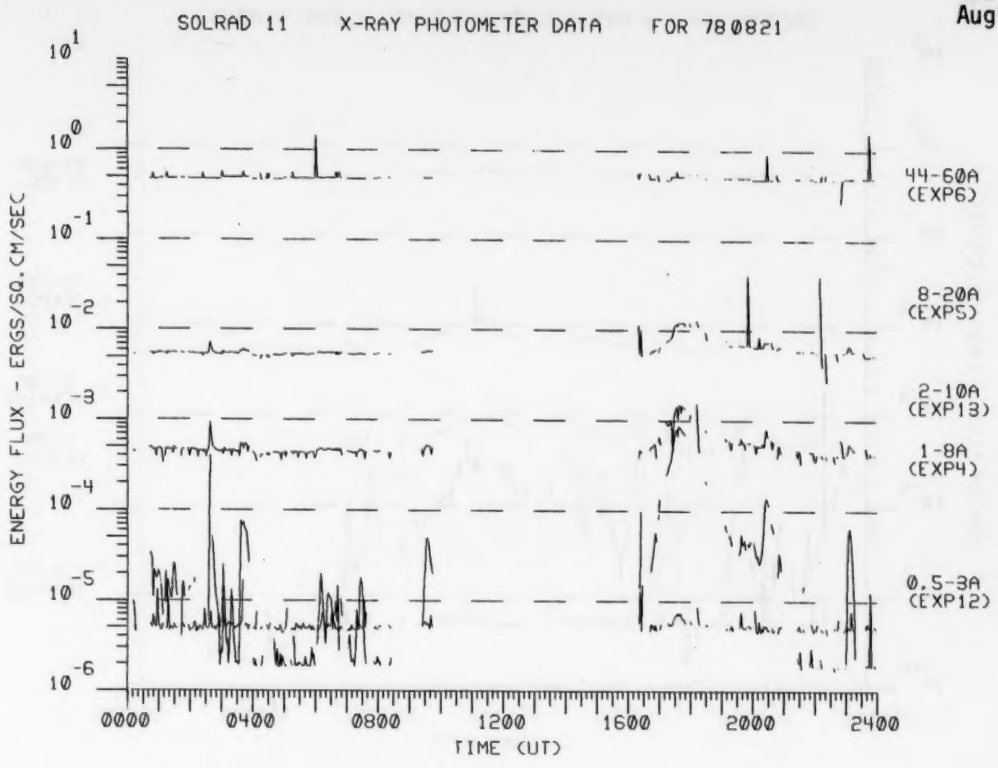
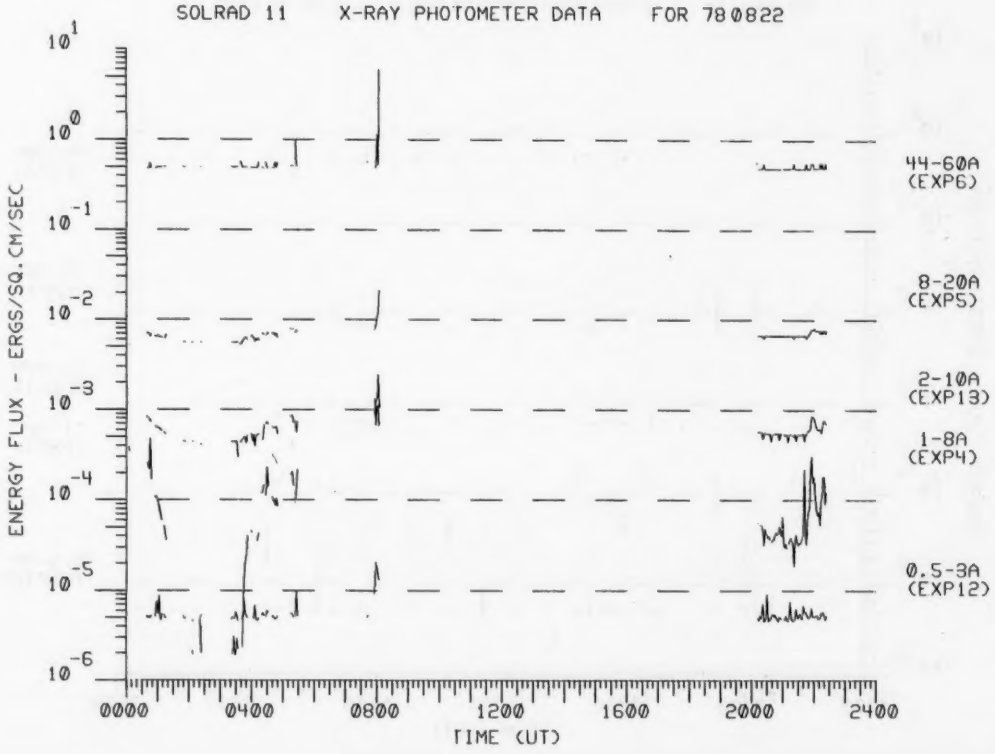
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)


SOLRAD 11 X-RAY PHOTOMETER DATA FOR 780821
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)


SOLRAD 11 X-RAY PHOTOMETER DATA FOR 780822
ENERGY FLUX - ERGS/SQ.CM/SEC
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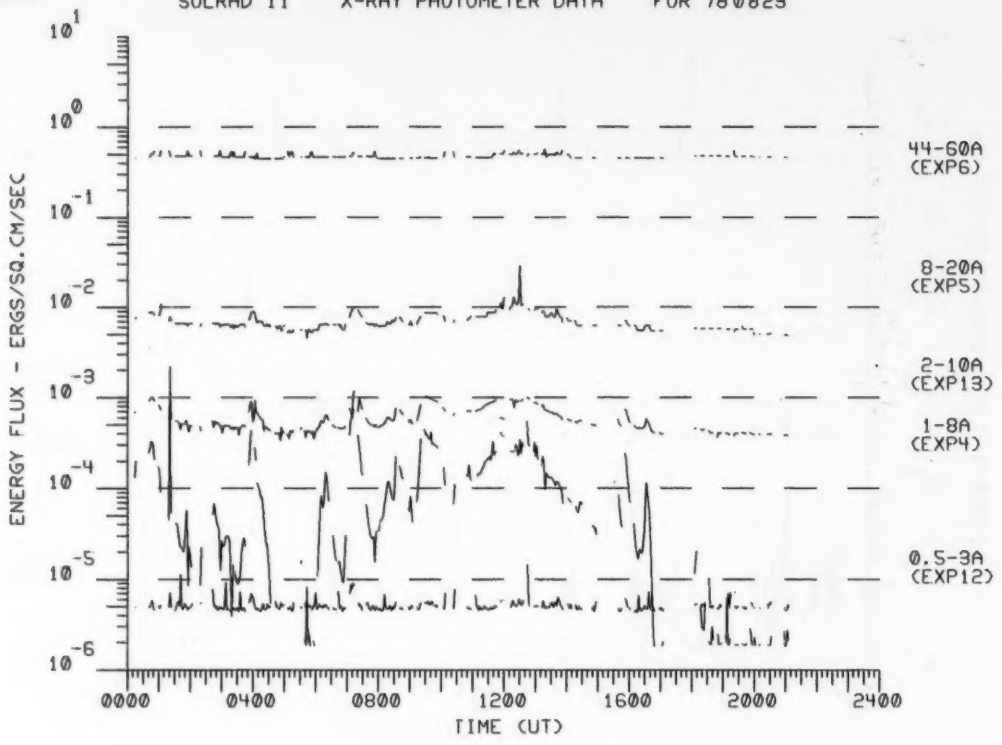
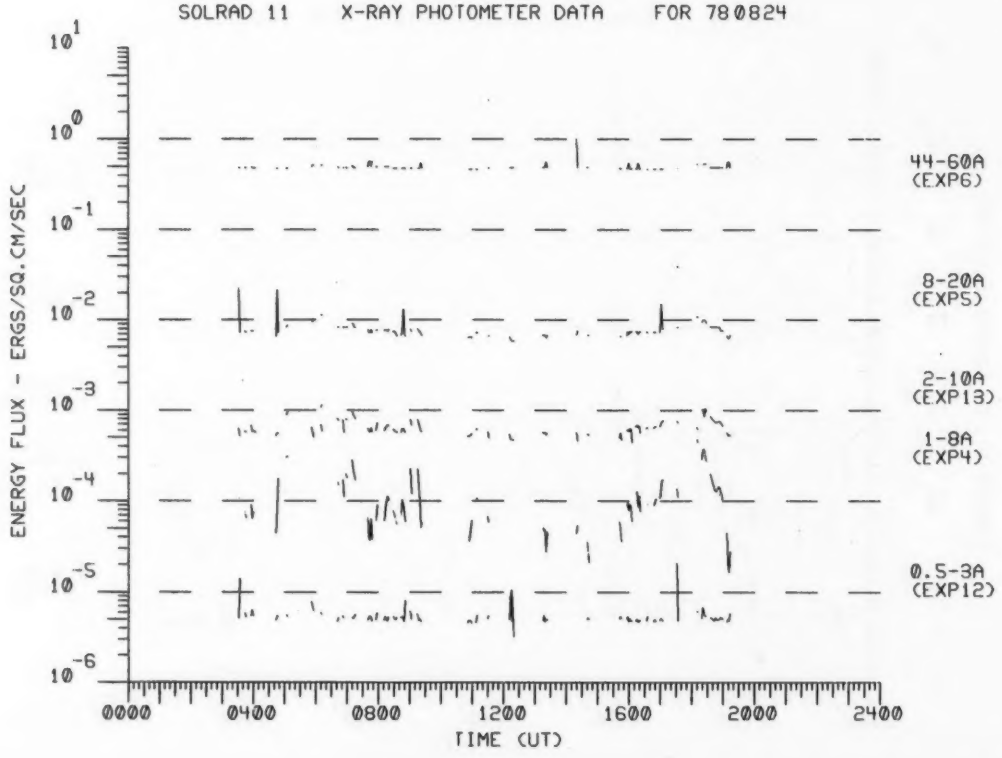
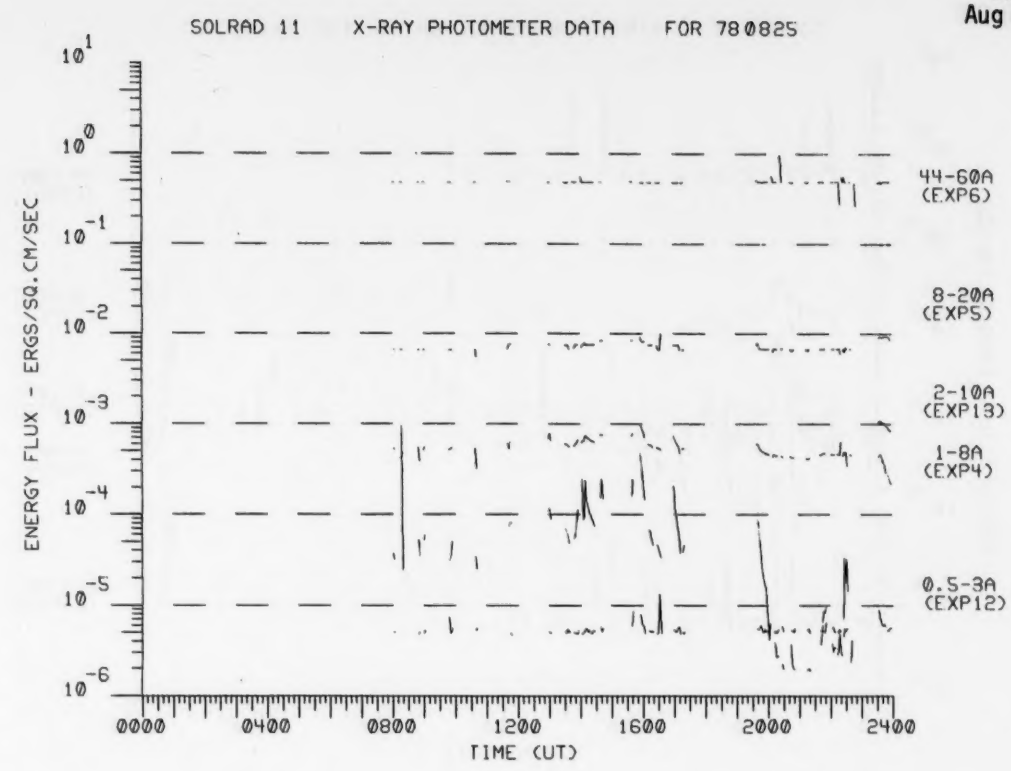
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)

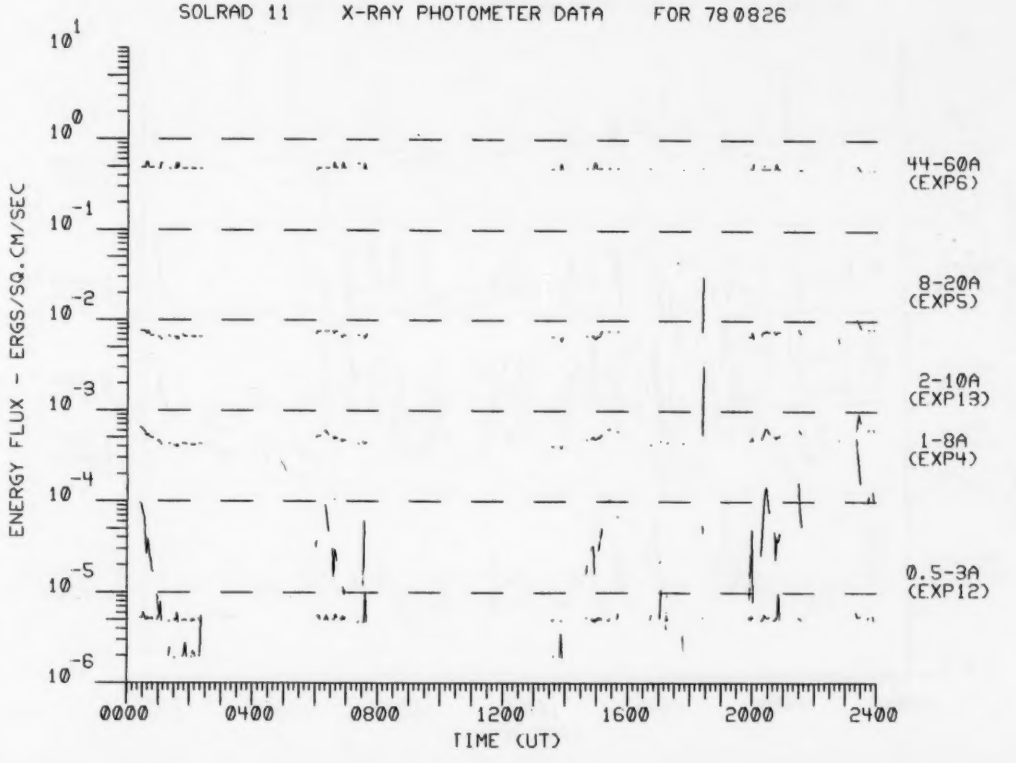
SOLRAD 11 X-RAY PHOTOMETER DATA FOR 780823



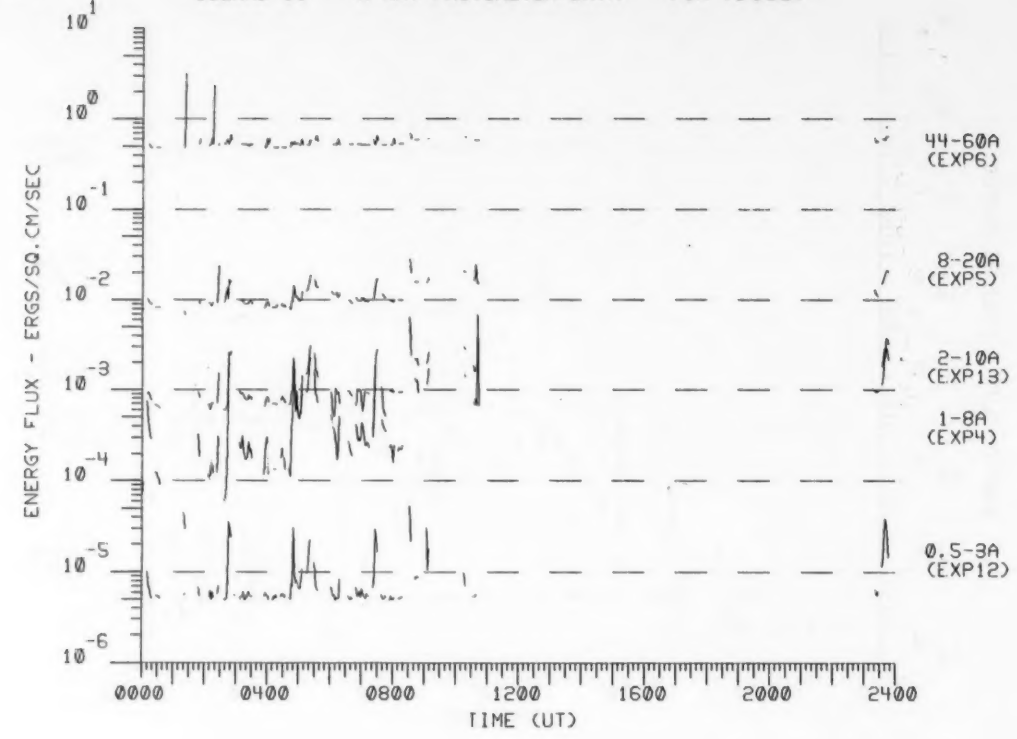
SOLRAD 11 X-RAY PHOTOMETER DATA FOR 780824



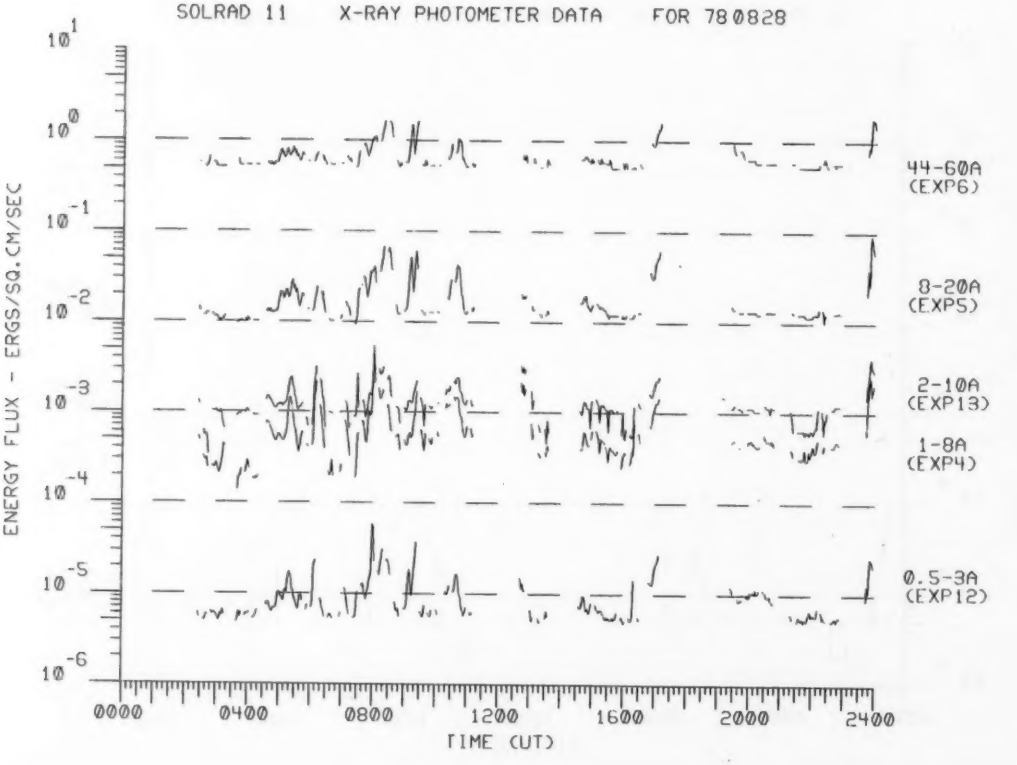

SOLRAD 11 X-RAY PHOTOMETER DATA FOR 780825
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)


SOLRAD 11 X-RAY PHOTOMETER DATA FOR 780826
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)

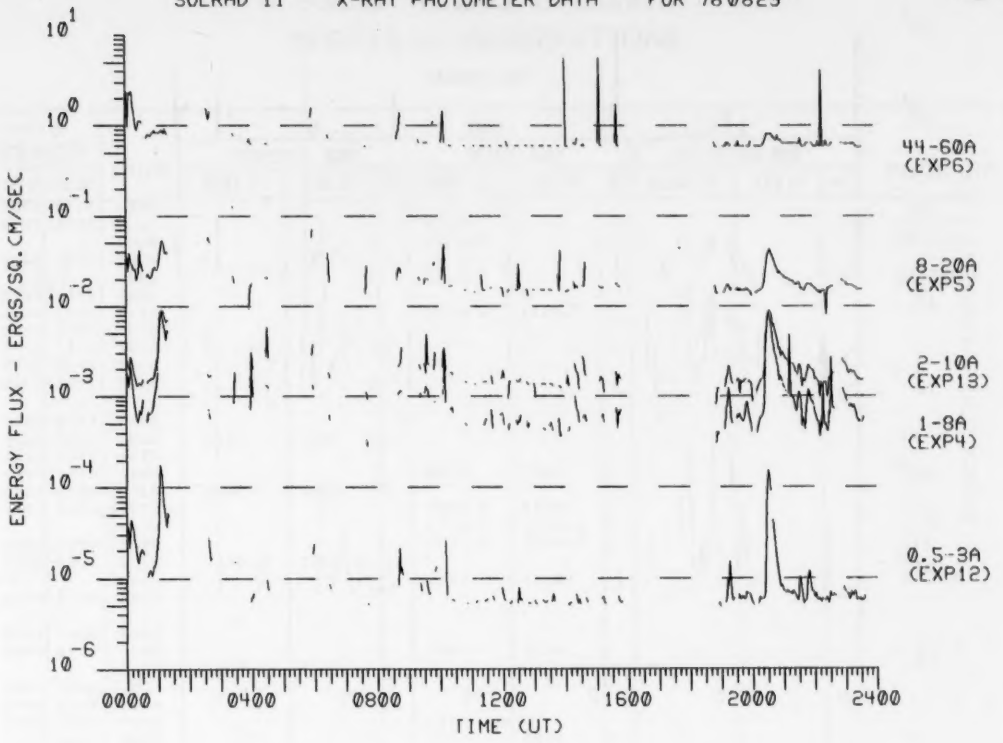
SOLRAD 11 X-RAY PHOTOMETER DATA FOR 780827



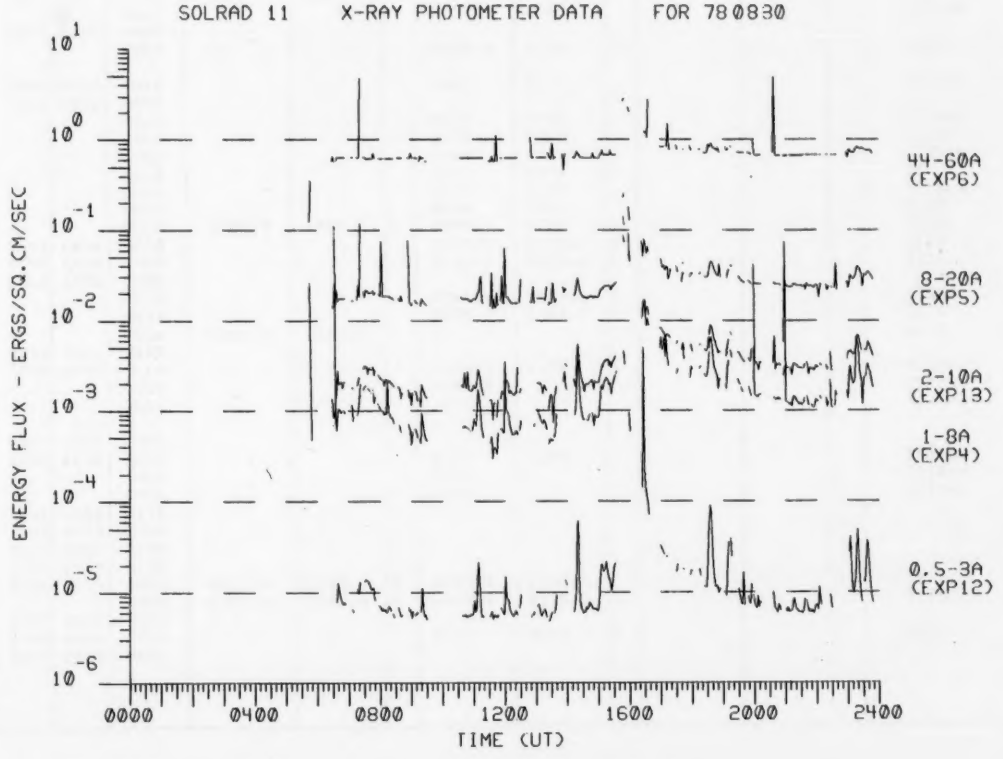
SOLRAD 11 X-RAY PHOTOMETER DATA FOR 780828

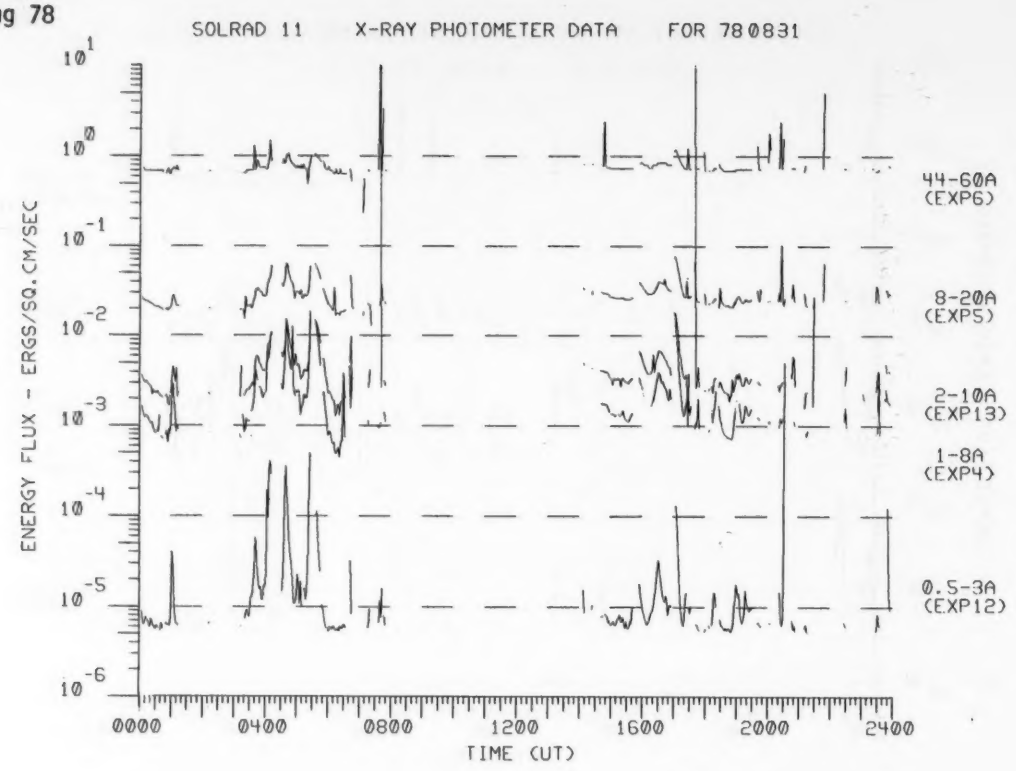


SOLRAD 11 X-RAY PHOTOMETER DATA FOR 780829



SOLRAD 11 X-RAY PHOTOMETER DATA FOR 780830




SOLRAD 11 X-RAY PHOTOMETER DATA FOR 780831
ENERGY FLUX - ERGS/SQ.CM/SEC
10^1
10^0
10^-1
10^-2
10^-3
10^-4
10^-5
10^-6
44-60A
(EXP6)
8-20A
(EXP5)
2-10A
(EXP13)
1-8A
(EXP4)
0.5-3A
(EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

AUGUST 1978

AUG 1978	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
01	0000	1011	MANI										
	0000	0738	CULG				0013						IIIB,W
			CULG				0054.5						IIIB,W
	0349	0535	DURN										
			CULG				0613.5						IIIB,W
	0939	2359	SGMR										
	0436	1511	WEIS				1120.4	1120.7	2				IIIB
	1525	1800	DURN										
	1546	1820	WEIS										
	2038	2400	CULG										
	2140	2400	MANI										
02	0000	1013	MANI										
	0000	0221	CULG	0018	0102	1							IN
	0439	0950	WEIS										
	0450	1800	DURN				0636	1220	1				I,N
	0307	0738	CULG	0638	0652	1							IN
	0957	1819	WEIS				1245.9	1246.1	2				IIIG
			WEIS				1757.7	1757.9	2				IIIG
	0940	2358	SGMR				2034.5	2034.8	1				III
	2038	2310	CULG	2058	2310	1							IN
			CULG				2117	2310					IIIN,W
	2129	2400	MANI										
03	0000	1000	MANI										
	0050	0738	CULG				0101	0726					IIIN,W
			CULG	0103	0738	1							IN
	0439	1608	WEIS										
	0624	1322	DURN										
	0942	2356	SGMR										
	1430	1800	DURN				1513	1550	2				IC
	1626	1818	WEIS										
	2038	2400	CULG	2102	2106	1							I
			CULG				2115.5	2400					IIIS,W
	2137	2400	MANI										
			CULG				2229.5	2230	2				IIIG
04	0000	0738	CULG				0000	0020					IIIS,W
	0000	1000	MANI										
			CULG				0020	0144					IIIN,W
			CULG				0110	0200					IS,W
			CULG				0144	0252					IIIS,W
			CULG				0200	0346	1				IS
			CULG				0252	0738					IIIN,W
			CULG				0510	0717					IN,W
			CULG	0725.5	0726	1	0725.5	0726	1				IIIB
	0441	1816	WEIS				0725.5	0726.0	3				IIIG
	0452	1800	DURN				0725.5	0725.6	1				IIIG
	0942	2356	SGMR										
			WEIS				0956.6	0957.1	3				IIIG
			WEIS				1431.3	1433.2	1				IIIG
			DURN	1624.5	1628.2	1							DCIM
	2146	2400	MANI										
	2038	2400	CULG				2156.5	2158	1				IIIG
			CULG				2206.5						IIIB,W
			CULG				2213						IIIB,W
05	0000	1000	MANI										
	0000	0650	CULG				0027	0028					IIIG,W
			CULG				0159						IIIB,W
			CULG				0222						IIIB,W
	0441	1000	WEIS										
	0702	0738	CULG										
	0943	2355	SGMR										
	1013	1815	WEIS										
	0452	1514	DURN	1247.8	1248.4	2	1247.8	1248.4	1				IIIG
			DURN	1355.5	1355.6	2	1352.9	1355.6	3				IIIG
	1727	1800	DURN										
	2038	2400	CULG				2131	2131.5	1				IIIG
	2148	2400	MANI										

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

AUGUST 1978

AUG 1978	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT	SPECTRAL TYPE
05			CULG				2225	2400	1				IIIN,W
06	0000	1000	MANI										
	0000	0738	CULG				0049	0049.5					IIIG,W
			CULG				0054	0224					IIIN,W
			CULG				0212.5	0213.5	2				IIIG,V
			CULG				0411	0718					IIIN,W
	0453	1800	DURN				0530	1134	1				I,C,N
	0443	1617	WEIS				0546.7	0546.8	1				IIIB
			WEIS				0618.5	0618.7	1				IIIB
			WEIS				0655.2	0655.3	1				IIIB
			WEIS				0718.1	0718.2	1				IIIB
			WEIS				0724.8	0724.9	1				IIIB
	0944	2353	SGMR										
			WEIS				0956.1	0956.2	1				IIIB
			DURN				1244.6	1244.7	2				III
	1635	1813	WEIS										
	2136	2400	MANI										
	2038	2400	CULG				2205	2205.5					IIIG,W
07	0000	1000	MANI										
	0000	0738	CULG				0115.5						IIIB,W
			CULG				0336						IIIB,W
			CULG				0640.5	0641.5					IIIG,W
			WEIS				1543.8	1544	1				IIIB
			WEIS				1545.2	1545.3	1				IIIB
	0443	1715	WEIS				1546.8	1547.3	1				IIIG
	1727	1812	WEIS										
	0453	1818	DURN	1745.9	1746.1	3	1741.6	1759.4	2				IIIGG
	0945	2352	SGMR				1800.4	1807.0	1				II
	2141	2400	MANI										
	2038	2400	CULG				2146	2400					IIIN,W
			CULG				2155.5		1				IIIB
			CULG				2207.5	2209	1				IIIG
			CULG	2214	2214.5	3	2214	2214.5	1				IIIG
			CULG	2341.5	2343	1	2341.5	2343	1				IIIG
			CULG	2356	2357	1							FAST DRIFT
08	0000	1000	MANI										
	0000	0738	CULG				0009	0738					IIIN,W
			CULG				0113		1				IIIB
			CULG	0353	0353.5		0353	0354					IIIG,W,U
	0446	0839	WEIS										
			CULG	0525.5		1							FAST DRIFT
			CULG	0631.5	0632	2							FAST DRIFT
	0535	1800	DURN	0631.6	0631.8	2							IIIG
			CULG				0709	0709.5					IIIG,W
	0926	1811	WEIS										
	0946	2351	SGMR										
	2038	2400	CULG	2045	2145	1	2050	2206	1				IS
			CULG				2052	2218					IIIS,W
			CULG				2100	2128	1				IS
	2138	2400	MANI										
09	0000	1001	MANI										
	0000	0710	CULG				0323.5						IIIB,W
			CULG				0402.5						IIIB,W
	0447	1127	WEIS										
	0455	1705	DURN										
			CULG	0458	0458.5		0458	0458.5					IIIG,W,U
			CULG				0624	0710					IIIN,W
	1212	1559	WEIS										
	1615	1809	WEIS				1657.2	1657.6	2				IIIG
	0947	2349	SGMR				1657.3	1657.7	1				IIIG
	2136	2400	MANI										
	2304	2400	CULG				2351.5						IIIB,W
10	0000	1000	MANI										
	0000	0738	CULG				0006.5	0010.5					IIIG,W
			CULG				0007.5		1				IIIB

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

AUGUST 1978

AUG 1978	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
10			CULG				0105						IIIB,W
			CULG				0122.5	0123	1				IIIG
			CULG				0149.5						IIIB,W
			CULG				0150.5		1				IIIB
			CULG				0151.5						IIIB,W
			CULG	0228.5	0229	1							IIIG
			CULG				0229.5						IIIB,W
			CULG	0237	0237.5	1							FAST DRIFT
			CULG				0254.5	0255.5					IIIG,W
			CULG	0454.5	0455	1							FAST DRIFT
			CULG				0535.5						IIIB,W
			CULG				0537.5						IIIB,W
			CULG				0622.5						IIIB,W
	0948	2348	SGMR				1125.6	1132.5	2				IIIG
	0718	1805	WEIS				1127.5	1128.8	2				IIIG
			WEIS				1132.3	1132.5	2				IIIG
			WEIS				1214.3	1214.5	1				IIIB
			SGMR				1257.9	1324.0	2				IIIG
			WEIS				1306.5	1306.6	1				IIIB
			WEIS				1423.7	1423.9	2				IIIG
			WEIS				1429.8	1429.9	1				IIIB
			WEIS				1504.7	1506.7	1				IIIG
			WEIS				1515.4	1515.6	2				IIIG
			SGMR				1515.5	1515.9	2				V
			WEIS				1631.1	1632.3	1				IIIG
			WEIS				1757.9	1758.0	1				IIIB
			CULG	2044	2049	1	2044	2049.5	1				IIIGG,U
	2040	2141	CULG				2044	2141	1				IIIS
			CULG				2056	2056.5	1				IIIG,U
	2132	2400	MANI										
			CULG	2135.5		1	2135.5		2				IIIB
			CULG	2137.5	2138	1	2137.5	2138	3				IIIG
			CULG	2138	2139	1	2138	2139	1				IIIG
	2156	2400	CULG				2156	2400					IIIN,W
			CULG	2224	2225	1	2224	2225	1				IIIG
			CULG	2258.5		1	2258.5		1				IIIB
			CULG	2301	2301.5	1	2301		1				IIIG
			CULG				2313	2313.5	3				IIIG,U
			CULG	2325	2326.5	1	2325	2327	1				IIIG
			CULG	2345	2347.5	1	2346.5	2347.5	2				IIIG
			CULG	2354.5	2357	1	2354.5	2357	1				IIIG
11	0000	1000	MANI										
	0000	0737	CULG				0027.5	0737					IIIN,W
			CULG	0032.5	0038	1	0032	0039	1				IIIGG
			CULG				0032.5	0034.5	2				IIIG,U
			CULG				0037.5	0038.5	2				IIIG
			CULG				0045.5	0046	3				IIIG,U
			CULG	0119		1	0119		1				IIIB
			CULG	0120.5		2	0120.5		2				IIIB,U
			CULG	0230	0231	1							IIIG
			CULG	0235.5	0237	1	0235.5	0237	1				IIIG
			CULG				0456	0458	2				IIIGG
			CULG	0717.5	0718	2							IIIG
	0924	1005	WEIS										
	0949	2347	SGMR										
	1018	1048	WEIS				1033.2	1034.3	1				IIIG
	1124	1800	DURN										
	1213	1805	WEIS				1339.7	1339.8	1				IIIB
	2037	2400	CULG				2048	2400					IIIS,W
			CULG	2052	2400	1							IN
			CULG				2053	2400	1				IS,DC
	2138	2400	MANI										
12	0000	1001	MANI										
			CULG				0000	0036					IIIS,W
	0000	0737	CULG				0000	0019	1				IS
			CULG				0036	0737					IIIN,W
			CULG	0331	0332	1							IIIG
	0459	0502	DURN										

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

AUGUST 1978

AUG 1978	TIMES OF OBSERVATION		STATION	EVENTS									SPECTRAL TYPE
				DECIMETRIC BAND			METRIC BAND			DEKAMETRIC BAND			
	START UT	END UT		START UT	END UT	INT	START UT	END UT	INT	START UT	END UT	INT	
12			CULG				0709	0737	1				IS
	0737	1656	WEIS										
	1030	2040	SGMR										
	0530	1821	DURN	1231.5	1233.2	1	1231.4	1236.3	2				IIIGG,RS
	1713	1805	WEIS										
			DURN				1728.3	1735.0	1				IIIGG
	2037	2225	CULG				2052	2104					IIIN,W
			CULG	2052	2052.5	1							IIIG
			CULG	2124.5	2126.5	2	2125	2126.5	1				IIIGG
	2143	2400	MANI										
			CULG				2209.5	2210					IIIG,W
			CULG				2210.5	2212.5	1				IIIG
13	0000	1000	MANI										
	0130	0737	CULG				0131	0737					IIIN,W
			CULG	0419.5	0434	1							N,FASTDRIF
			CULG				0433.5	0437					IIIG,W
			CULG				0440	0441.5					IIIG,W
	0459	0502	DURN										
			CULG				0617	0617.5					IIIG,W
	0655	1801	WEIS				0656.0	0656.1	1				IIIB
			CULG	0656		1	0655.5	0656	1				IIIG
			WEIS				0801.7	0802.3	1				IIIG
	1030	2000	SGMR										
	0530	1819	DURN	1043.4	1043.5	3							IIIG
			DURN	1636.6	1636.7	2							IIIG
			WEIS				1704.5	1705.7	1				IIIG
	2136	2400	MANI										
	2037	2400	CULG				2336	2400					IIIN,W
14	0000	0736	CULG	0000.5	0001.5	1							FAST DRIFT
			CULG				0000	0214					IIIN,W
	0000	1001	MANI										
			CULG	0016.5		1							IIIB
			CULG	0018.5	0019	1							IIIG
			CULG				0308	0310.5					IIIG,W
			CULG	0557	0558	2							FAST DRIFT
	0531	1822	DURN	0659.4	0659.6	2							DCIM
	0718	1212	WEIS										
	1030	2000	SGMR										
	1331	1801	WEIS				1647.3	1648.3	1				IIIG
	2037	2400	CULG				2044	2332					IIIN,W
			CULG				2138	2246	1				IS
	2139	2400	MANI										
			CULG				2230.5	2232.5	2				IIIG,U
15	0000	0307	MANI										
	0000	0540	CULG				0026	0028					IIIG,W
			CULG				0132	0134					IIIG,W
			CULG				0133	0133.5	1	0133	0133.5	1	IIIB,V
			CULG				0319	0321					IIIG,W
	0404	1000	MANI										
	0531	1101	DURN										
	0620	0736	CULG				0651.5						IIIB,W
			CULG				0718						IIIB,W
	1030	2000	SGMR										
	0716	1759	WEIS	1327.8	1328.4	2							IIIG
	2037	2400	CULG				2107.5	2110	1				IIIGG
	2141	2400	MANI										
			CULG				2241.5						IIIB,W
16	0000	0553	MANI										
	0000	0736	CULG				0402	0416					IS,W
			CULG				0419.5	0421	2				IIIG
			CULG	0420	0421	1	0417.5	0422	1				IIIGG
	0500	0844	WEIS										
			CULG	0503	0503.5		0503	0503.5					IIIG,W
	0759	1005	MANI										
	1030	2000	SGMR										
	0905	1758	WEIS				1656.7	1656.9	1				IIIG

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

AUGUST 1978

AUG 1978	TIMES OF OBSERVATION 1978 START UT	END UT	MONTH OF STATION	EVENTS DECIMETRIC BAND START UT	END UT	INT	METRIC BAND START UT	END UT	INT	DEKAMETRIC BAND START UT	END UT	INT	SPECTRAL TYPE
16	2139	2400	MANI										
			CULG				2217						IIIB,W
			CULG				2249.5		1				IIIB
	2036	2400	CULG	2259.5	2300	1	2259.5	2300	2				IIIG
			CULG				2302	2303					IIIG,W
			CULG	2307	2309	1	2307	2309.5	1				IIIGG,U
			CULG	2337		1							IIIB
			CULG				2341.5	2342.5					IIIG,W
			CULG	2400			2400						IIIB,W
17	0000	0239	MANI										
	0000	0736	CULG	0002.5	0006.5	2	0002.5	0013	1				IIIGG,U
			CULG							0004	0010.5	1	IIIN
			CULG				0005	0006	1				IIIG,V
			CULG	0012	0012.5	2	0012	0013	2				IIIG,V
			CULG				0016	0023					POSSIBLEII
			CULG				0023	0038.5	1				II
			CULG				0057	0106					IIIN,W
			CULG	0057		1	0057		1				IIIB
			CULG	0207	0208	1	0207	0208	1				IIIG
			CULG	0209.5									IIIB,W
			CULG	0329	0329.5	1	0329	0329.5	1				IIIG,U
			CULG	0338.5	0349	1							IIIGG
	0405	1001	MANI										
			CULG	0413	0413.5		0413	0413.5					IIIG,W
			CULG	0414.5	0415		0414.5	0415					IIIG,W,U
			CULG				0540	0541					IIIG,W
			CULG				0601.5	0602					IIIG,W
			CULG	0608	0611	1							IIIGG
			CULG				0608	0611.5					IIIGG,W,U
			CULG				0609.5	0610	1				IIIG
			CULG				0615						IIIB,W
	1030	2000	SGMR										
	0648	1631	WEIS				1328.3	1328.4	1				IIIB
			WEIS				1334.4	1334.5	1				IIIB
			WEIS				1437.4	1439.4	2				IIIG
			WEIS				1448.9	1449	1				IIIB
			WEIS				1524.6	1525.3	1				IIIG
			WEIS				1623	1623.3	2				IIIG
	1637	1745	WEIS				1647.6	1647.8	2				IIIB
			CULG				2040.5	2042					IIIG,W
	2036	2400	CULG	2040	2044	1							IIIG
			CULG	2115.5	2116	1	2115.5	2116.5	2				IIIG
	2151	2400	MANI										
			CULG				2301.5	2302					IIIG,W
18	0000	0311	MANI										
	0000	0736	CULG				0215	0217	1	0215	0217	1	IIIG
			CULG				0234.5	0235	1				UNCLF
			CULG				0234	0243					IIIN,W
	0320	1000	MANI										
			CULG				0335	0337.5					IIIGG,W
			CULG				0340.5						IIIB,W
			CULG	0551		1	0551		1				IIIB
			CULG				0553	0553.5					IIIG,W
			CULG	0633	0633.5	1	0633	0633.5	1				IIIG
	0715	1300	WEIS				0743.3	0743.4	1				IIIB
			WEIS				0923.6	0925.7	1				IIIG
	1030	2000	SGMR										
			WEIS				1034.9	1039.3	1				IIIGG
	1304	1822	DURN	1353.1	1353.9	2	1353.1	1353.9	2				IIIGG
			DURN	1420.4	1421.7	2	1420.4	1421.7	2				IIIG
	1444	1800	WEIS										
	2036	2400	CULG										
	2141	2400	MANI										
19	0000	1000	MANI										
	0000	0736	CULG				0001	0002					IIIG,W
			CULG				0053.5		1				IIIB
			CULG				0059	0059.5					IIIG,W

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

AUGUST 1978

AUG 1978	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT	SPECTRAL TYPE
19			CULG				0109.5						IIIB,W
			CULG				0139	0141	1	0140	0141.5	1	IIIG,V
			CULG				0515.5						IIIB,W
	0714	1559	WEIS										
	1030	2000	SGMR										
	1614	1800	WEIS										
	0532	1820	DURN				1742.9	1743.1	3				IIIG
			DURN				1800.9	1811.2	1				IIIG
	2036	2400	CULG										
	2142	2400	MANI										
20	0000	0004	MANI										
	0012	1000	MANI										
	0000	0706	CULG				0310.5						IIIB,W
			CULG				0312.5						IIIB,W
	0532	1812	DURN				1014.7	1014.7	1				III
	1030	2000	SGMR										
	2038	2400	CULG	2040.5	2041								UNCLF
			CULG				2103.5	2104					IIIG,W
	2140	2400	MANI										
21	0000	1000	MANI										
	0000	0735	CULG										
	0753	1750	WEIS										
	1030	2000	SGMR										
	0532	1741	DURN				1417.3	1417.8	1				IIIG
	2140	2400	MANI										
	2035	2400	CULG				2332						IIIB,W
22	0000	0308	MANI										
	0000	0735	CULG	0040.5	0041		0040.5	0041					IIIG,W
	0312	1000	MANI										
	0509	1221	DURN										
			CULG				0525						IIIB,W
	0715	1500	WEIS				0853.2	0853.3	1				IIIB
	1030	2000	SGMR				1456.6	1457.0	1				III
	1605	1700	WEIS										
	2035	2400	CULG										
	2147	2400	MANI										
23	0000	1000	MANI										
	0000	0735	CULG				0058.5	0059					IIIG,W
			CULG	0212.5	0214	2	0213.5	0214	1				IIIG
			CULG	0217	0217.5	1							IIIG
	0704	1640	WEIS										
	1030	2000	SGMR										
	1213	1302	DURN	1234.8	1234.9	1	1234.8	1234.9	1				III
	1318	1742	DURN				1348.7	1350.9	2				IIIGG
			DURN	1533.2	1533.4	1	1533.2	1533.4	1				IIIG
	2142	2400	MANI										
	2035	2400	CULG	2154.5	2155	2							IIIG
			CULG	2205.5	2210	1	2205.5	2208	1				IIIG,N
			CULG	2218.5	2219.5	1							IIIG
24	0000	1000	MANI										
	0000	0734	CULG	0619		1							IIIB
			CULG	0620.5									IIIB,W
			CULG	0637	0638.5	1	0637.5		1				IIIG
	0748	0913	WEIS				0825.0	0825.3	1				IIIG
			WEIS				0910.7	0912.8	2				IIIG
	0509	1742	DURN	0943.3	0944.2	1							IIIG,U
	1030	2000	SGMR										
	2035	2400	CULG										
	2142	2400	MANI										
25	0000	1000	MANI										
	0506	0534	WEIS										
	0000	0725	CULG				0642	0642.5					IIIG,W
	0640	1743	WEIS				1319.3	1321.5	1				IIIG
	0511	1805	DURN				1322.2	1326.0	2				IIIGG

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

AUGUST 1978

AUG 1978	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT	SPECTRAL TYPE
25			DURN				1403.8	1432.7	2				IIIGG,N
			WEIS				1520.5	1522.4					IIIG,U
			DURN				1523.4	1547.8	3				IIIGG,N
			WEIS				1543.2	1544.8	2				IIIG
	1030	2000	SGMR				1543.9	1544.0	1				III
			DURN	1617.1	1617.1	2	1617.1	1617.1	2				III
	2035	2400	CULG										
	2141	2400	MANI										
26	0000	1000	MANI										
	0000	0734	CULG	0008	0008.5		0008	0008.5					IIIG,W
			CULG				0331.5	0338					IIIGG,W
			CULG				0334.5	0336	1	0335.5	0336	2	IIIG
			CULG				0334	0334.5					IIIG,W
			CULG				0336	0338					IIIN,W
	0535	1804	DURN										
	1030	2000	SGMR										
	0934	1740	WEIS				1140.8	1141.3	1				IIIG
			WEIS				1201.2	1202.7	1				IIIG
			WEIS				1246.6	1248.3	1				IIIG
	2152	2400	MANI										
	2034	2400	CULG				2202	2210.5					IIIN,W
27	0000	1000	MANI										
	0000	0733	CULG				0123						IIIB,W
			CULG				0219	0219.5	2				IIIG,U
	0900	1000	WEIS										
	0536	1543	DURN	0922.8	0929.0	1							DCIM
	1016	1750	WEIS										
	1030	2000	SGMR				1817.4	1818.1	2				IIIG
			SGMR				1945.0	1946.0	2				IIIG
	2034	2400	CULG				2112						IIIB,W
	2151	2400	MANI										
			CULG				2246.5		1				IIIB
			CULG				2341	2341.5					IIIG,W
28	0000	1000	MANI										
	0000	0733	CULG				0009	0026					IIIN,W
			CULG				0011	0011.5	1				IIIG
			CULG				0215	0217.5	2	0215.5	0216.5	2	IIIG,U
			CULG				0241.5	0242					IIIG,W
	0612	1127	WEIS										
	0859	1506	DURN										
	1030	2000	SGMR										
	1131	1307	WEIS										
	1311	1420	WEIS										
	1536	1802	DURN										
	2033	2400	CULG				2120	2203					IIIN,W
			CULG				2124	2125	2				IIIG
	2140	2400	MANI										
			CULG	2148	2148.5		2148	2148.5					IIIG,W,U
29	0000	1000	MANI										
	0000	0733	CULG	0013	0013.5	1							UNCLF
			CULG				0210.5						IIIB,W
			CULG				0212.5	0214.5					IIIG,W
			CULG	0252	0253	2	0252.5	0255	3				IIIG,V,U
	0533	1804	DURN										
			CULG				0608	0642	2			II	
			CULG				0628.5	0629					IIIG,W
	1030	2000	SGMR				1449.2	1449.5	1				III
	2033	2400	CULG				2036.5	2138					IIIN,W
			CULG				2119.5	2120	1				UNCLF
	2139	2400	MANI										
			CULG				2313.5	2314	1				IIIB,U
			CULG				2331.5	2332.5					IIIG,W
30	0000	1000	MANI										
	0000	0608	CULG	0106	0509								IS,W
			CULG				0312	0317				II,	W

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

AUGUST 1978

AUG 1978	TIMES OF OBSERVATION START UT	TIMES OF OBSERVATION END UT	STATION	EVENTS DECIMETRIC BAND START UT	DECIMETRIC BAND END UT	DECIMETRIC BAND INT	METRIC BAND START UT	METRIC BAND END UT	METRIC BAND INT	DEKAMETRIC BAND START UT	DEKAMETRIC BAND END UT	DEKAMETRIC BAND INT	SPECTRAL TYPE
30			CULG				0505	0506					IIIG,W
			CULG	0509	0608	1							IS
			CULG				0529	0606					IIIN,W
	0533	1757	DURN	0533 E	0800	1	0533 E	1620	1				I,DC,N
	0618	0732	CULG	0618	0732								IS
			CULG				0645.5						IIIB,W
	1030	2000	SGMR				1600.0	2000.0D	1				CONT
	2035	2400	CULG	2054.5		1	2054	2054.5	1				IIIG
			CULG	2059	2100	1	2059	2100	2				IIIG
			CULG	2100.5	2101	1	2100.5	2101	1				IIIG
			CULG				2125.5		1				IIIB
			CULG				2129.5						IIIB,W
			CULG	2131	2132	1	2132		1				IIIG
			CULG	2135	2135.5	1	2135	2135.5	1				IIIG
	2142	2400	MANI										
			CULG				2250	2252	1				IIIGG
			CULG	2308	2308.5	1							IIIG
			CULG				2355.5	2356					IIIG,W
31	0000	1000	MANI										
	0000	0732	CULG	0033	0241		0006.5	0241					IIIN,W
			CULG				0036		1				IIIG
			CULG				0041		1				IIIG,U
			CULG	0130	0130.5	2							IIIG
			CULG	0457.5	0458	2							FAST DRIFT
			CULG				0459	0459.5	1				IIIG
			CULG	0459	0503								IIIN,W
			CULG	0513	0732								IN,W
			CULG	0537	0537.5	1	0537	0537.5	1				IIIG
	0533	1756	DURN	0618	0710		0533 E	0730	2				I,DC
			CULG	0642.5		1							FAST DRIFT
			CULG				0649.5	0650.5					IIIG,W
	0855	1732	WEIS				1242.5	1244.5	1				IIIG
	1030	2000	SGMR				1249.0	1252.0	1				II
			WEIS				1308.3	1312.0	2				IIIGG
			SGMR				1310.0	1313.3	2				IV
			WEIS				1331.4	1331.8	1				IIIG
			CULG				2049	2400					IIIN,W
			CULG				2126	2127.5	1				IIIG
			CULG				2129	2130	1				IIIG
	2033	2400	CULG	2129	2230		2033	2400					IS,W
			CULG				2140	2143.5	1				IIIGG
			CULG				2140	2141.5	2	2140	2141.5	2	IIIG
	2145	2400	MANI										
			CULG	2154.5	2157	1	2154.5	2157	1				IIIGG
			CULG	2230	2304								IN,W
			CULG	2256	2258.5	1	2256	2258.5	1				IIIGG
			CULG				2256	2257	2	2256	2257	2	IIIG
			CULG	2259.5		2	2259.5		2	2259.5		2	IIIB
			CULG				2301		1	2301		1	IIIB
			CULG	2334	2334.5	1	2334	2334.5	2				IIIG
			CULG				2339	2339.5	2	2339	2339.5	1	IIIG

The symbols used in connection with the spectral type in describing the important bursts are as follows:

B = Single burst
G = Small group (< 10) of bursts
GG = Large group (> 10) of bursts
C = Underlying continuum (particularly with type I)
S = Storm in the sense of intermittent but apparently connected activity
N = Intermittent activity in this period
U = U-shaped burst of Type III
RS = Reverse slope burst
DP = Drifting pairs
DC = Drifting Chains
H = Herringbone
W = Weak
P = Pulsations
CONT = Continuum
UNCLF = Unclassified activity

Note: The 25-580 MHz solar radio burst observations are being continued at the Harvard Radio Astronomy Station at Fort Davis, Texas, but the preparation of data summaries will be delayed somewhat.

SELECTED SOLAR EVENTS

AUGUST 1978

Culgoora

UT Date 197.8 AUGUST	HELIOGRAPH EVENT							Spectral Type	REMARKS
	Start (UT)	End (UT)	Freq. (MHz)	Positions: Central Dist. ($R_\odot$)	Positions: Position Angle (Deg.)	Polarization	Intensity (1-3)		
6	0212	0213	43.25)				3)		
			80)	1.0	235	-	2)	IIIG,V	*
			160)				2)		
8	0122		43.25)	.2	125	-	2)	IIIB,W	
			80)				1)		
	0137		43.25)				2)		*Type III's
			80)	1.0	270	-	1)	IIIG,W	from this
			160)				1)		region persis-
									ted until 9th.
	0148	0149	80	.9	105	-	1	IIIG,W	
	2304		80	.5	95	-	1	IIIB	
9	0458		80)	.8	220	-	1)	IIIG,W,U	
			160)				)		
10	0123		80)	.7	340	-	2)	IIIG	*Type III's
									from this
									region persis-
									ted until 11th.
	0149	0151	43.25		145)		)		
			80)	.3	110)	-	2)	IIIG	*
			160)		110)		)		
11	0045	0046	80)	.2	355)	-	3	IIIG,U	*
			160)	.1	)				
	0456	0501	43.25)	1.4)	60	-	2)	IIIGG	
			80)	1.2)			1)		
13	0434	0436	43.25)	1.5)	60		2)	IIIG,W	*Type III's
			80)	1.3)			)		from this
15	0133	0134	43.25)	1.3)			2)		region persis-
			80)	1.2)	240		2)	IIIB,V	ted until 14th.
			160)	1.1)			1)		
16	0417	0423	43.25)	.3)			3)		
			80)	.2)	330	-	3)	IIIGG	
			160)	.1)			2)		
17	0002	0013	43.25	.8)	60)	-	3)		
				1.5)	40)		)		
			80	1.0)	90)	-	3	IIIGG,U	*

Days without Heliograph observations: ...Nil.....

* Other type III's observed from same position during the day.

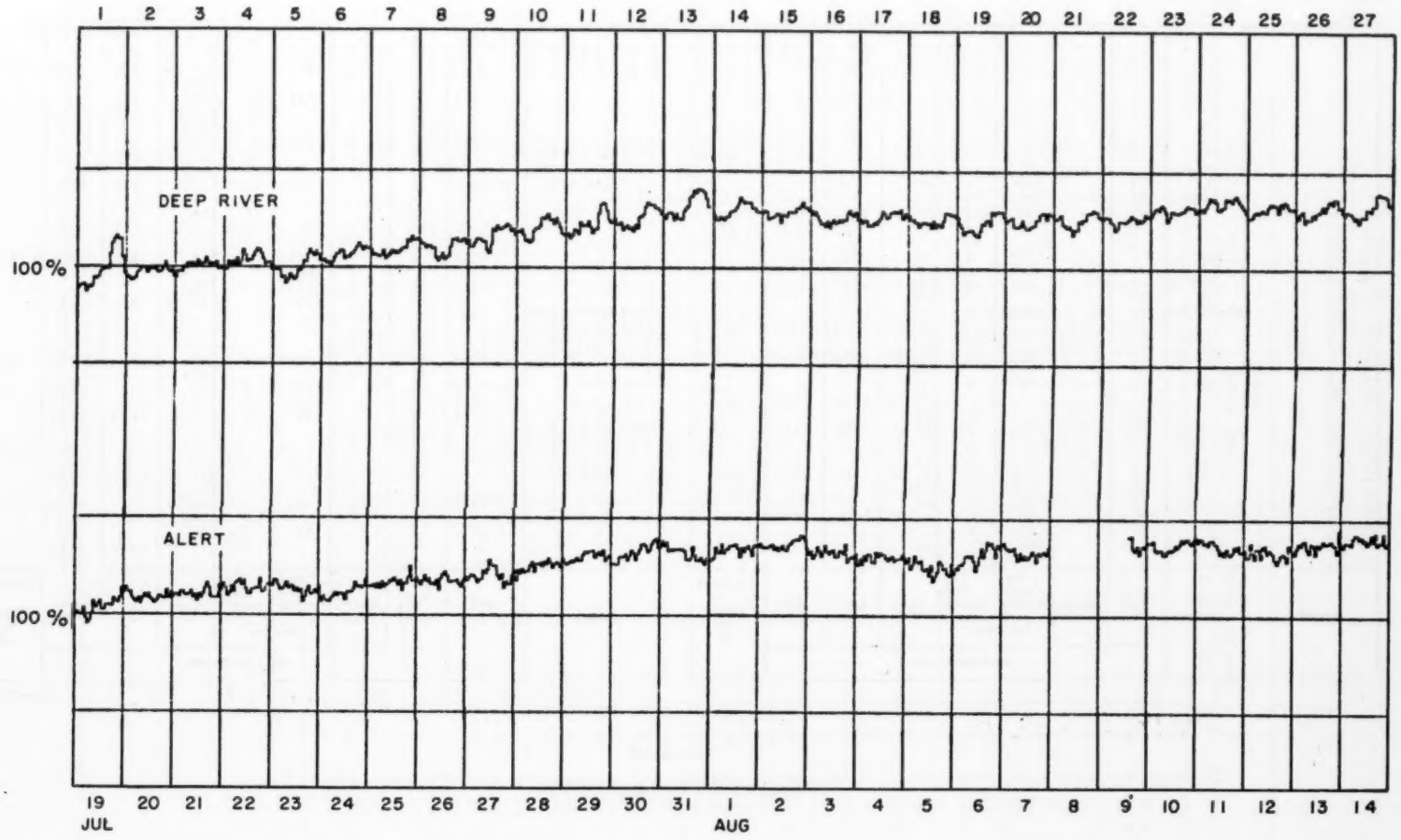
UT Date 197.8 AUGUST	HELIOGRAPH EVENT							Spectral Type	REMARKS
	Start (UT)	End (UT)	Freq. (MHz)	Positions: Central Dist. ($R_\odot$)	Positions: Position Angle (Deg.)	Polarization	Intensity (1-3)		
17			80	1.5)	45)		)	IIIGG,U	*
			160)	.9	95		3)		
	0020	0038	43.25)	1.1)	65		3)		
			80)	1.1)	65		1)	II	
			160)	1.0)	360		2)		
19	0139	0141	43.25	1.5)	300		3)	IIIG,V	
			80)	1.3)			2)		
23	0213	0214	80)	.6)	245		1)	IIIG	
			160)	.5)			2)		
26	0331	0338	43.25)				)		
			80)	.8	90		2)	IIIGG,W	
			160)				)		
27	0219	0220	43.25)	1.5)	120		2)	IIIG,U	
			80)	1.3)			)		
29	0253	0255	43.25)				3)		
			80)	.9	250		3)	IIIG,V,U	
			160)				1)		
	2331	2333	80)	1.3	290	-	2	IIIG,W	
30	0312	0317	80	1.3	290	L	2	II,W	
	2251	2252	80	1.2	310	-	1	IIIGG	
31	0130	0131	80	1.1	140		2	IIIG	
	2256	2258	43.25)	.7	40)		3)		
			80)	.4	50)		2)	IIIGG	
			160)	.3	60)		1)		

Days without Heliograph observations: NIL

* Other type III's observed from same position during the day.

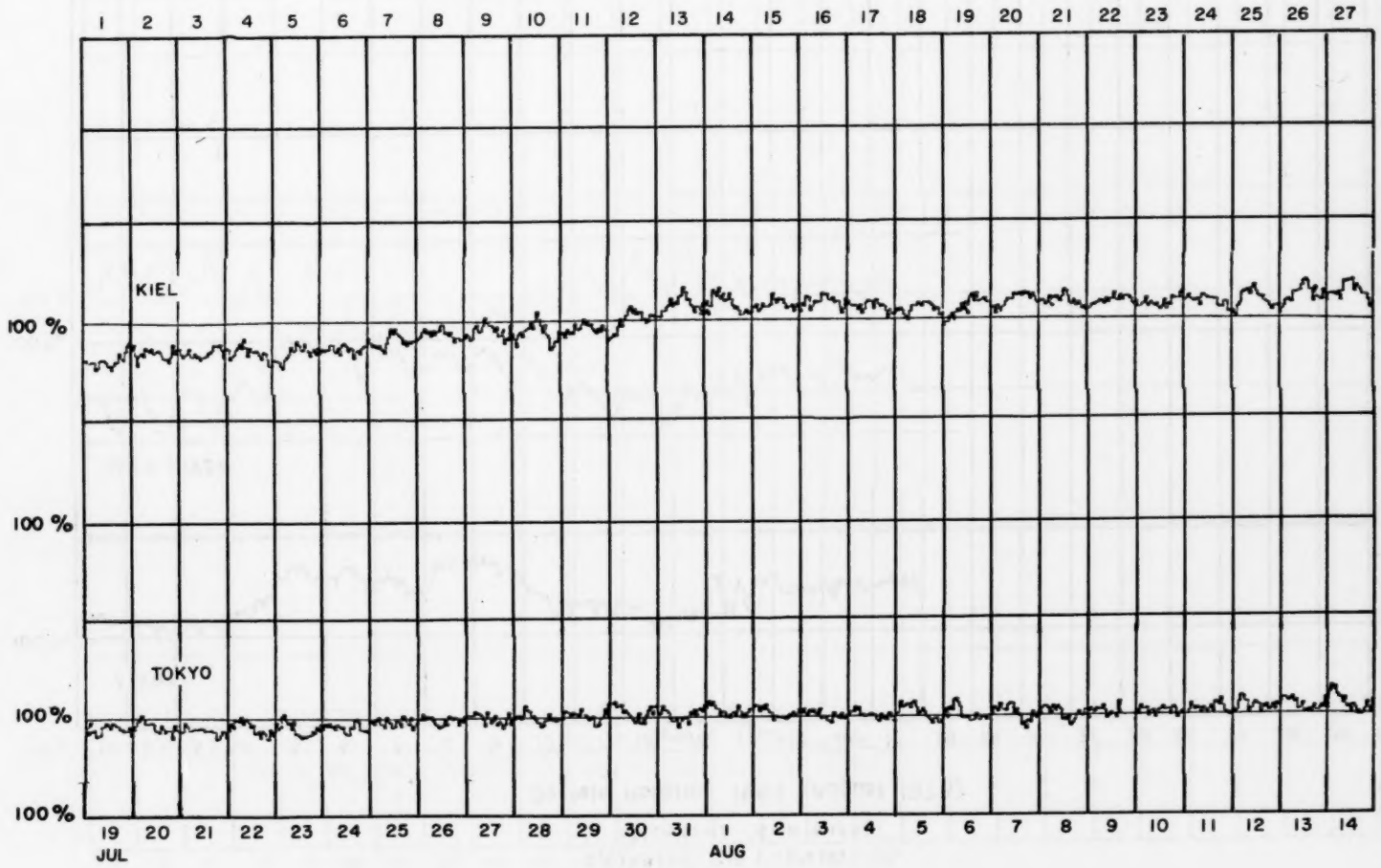
COSMIC RAY INDICES
(Neutron Monitors)

Bartels Rotation 1982 (July-August 1978)



COSMIC RAY INDICES
(Neutron Monitors)

Bartels Rotation 1982 (July-August 1978)



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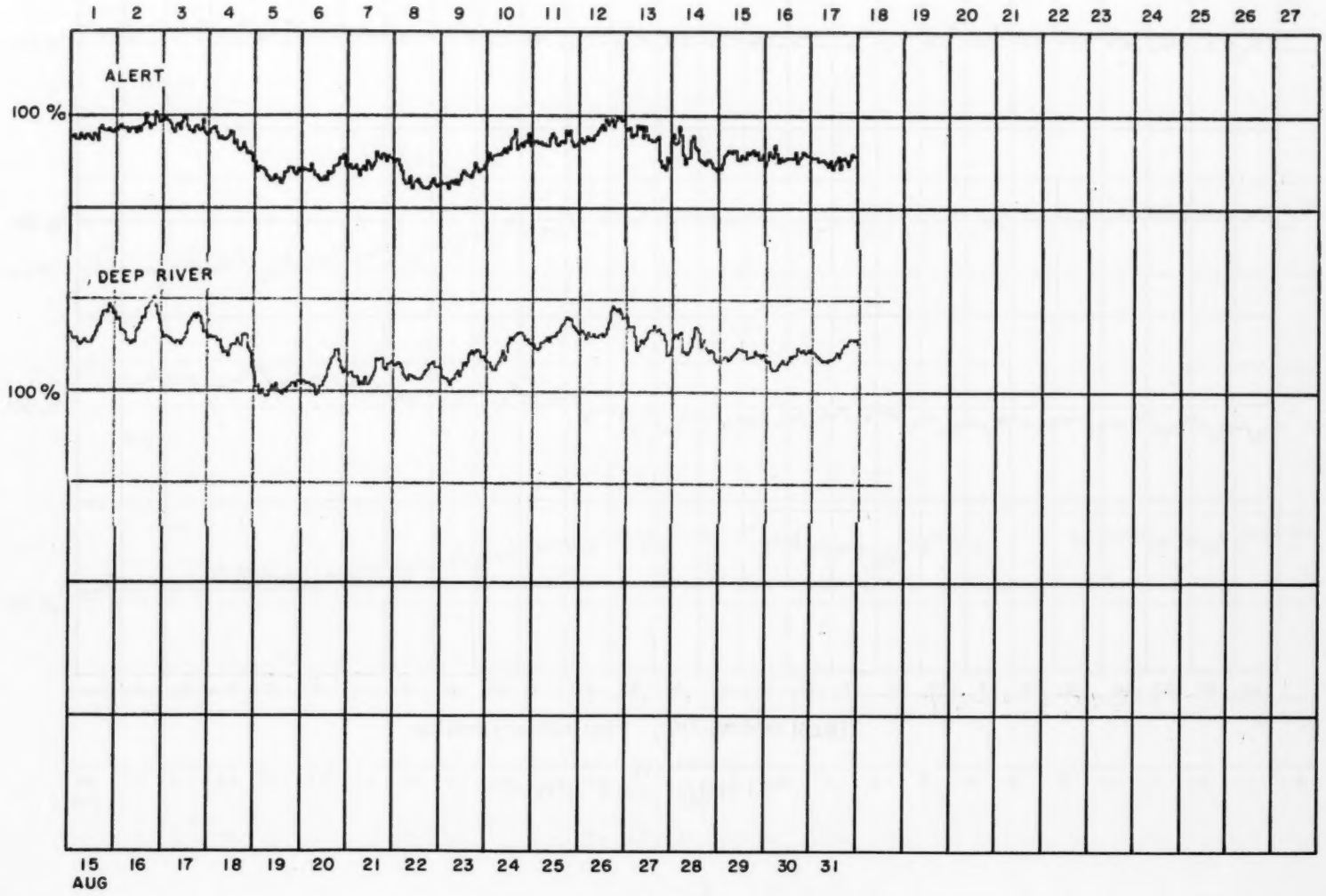
Aug 78

COSMIC RAY INDICES
(Neutron Monitors)

Bartels Rotation 1983 (August 1978)

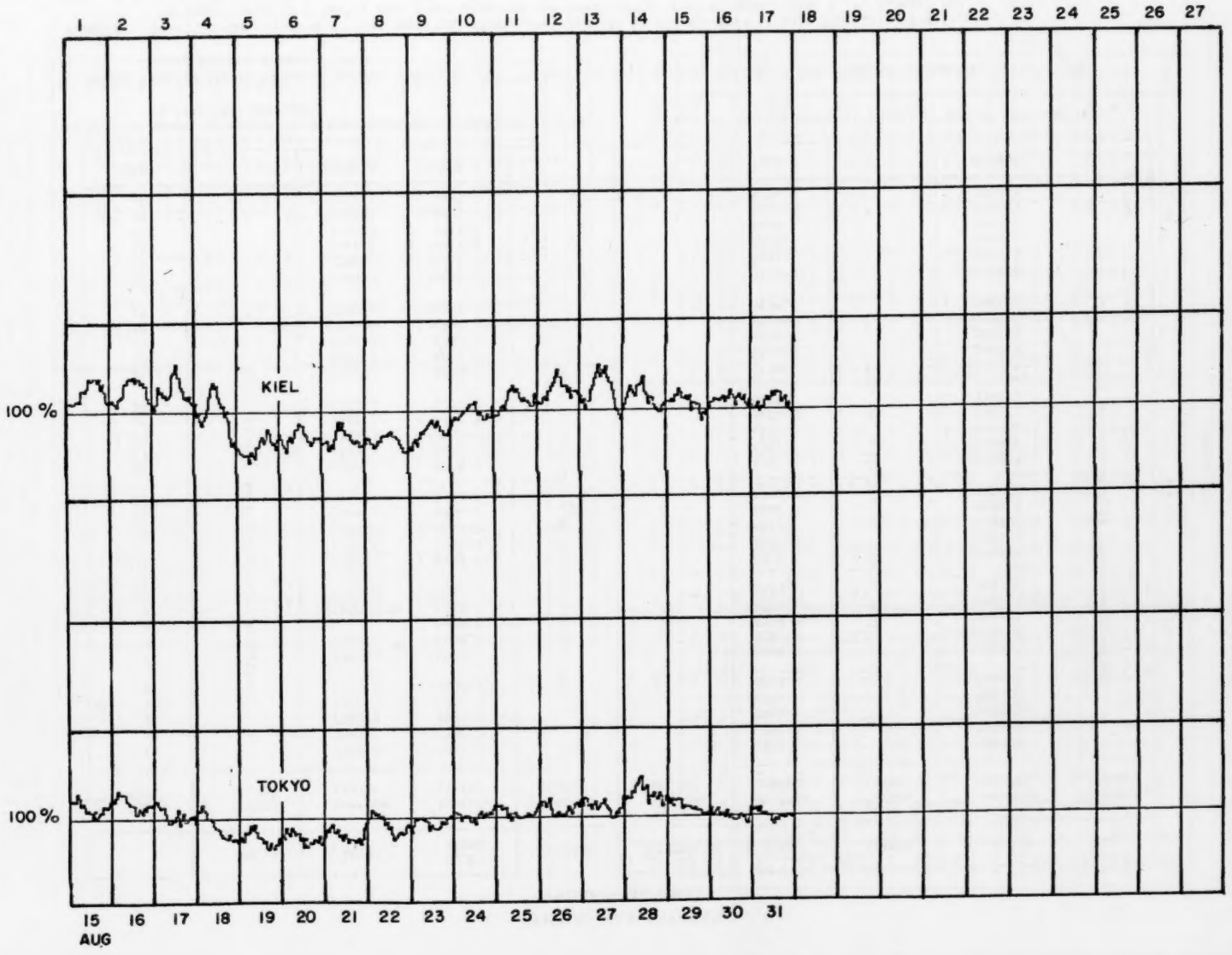


COSMIC RAY INDICES
(Neutron Monitors)
Bartels Rotation 1983 (August 1978)

AUG

COSMIC RAY INDICES
(Neutron Monitors)

Bartels Rotation 1983 (August 1978)



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COSMIC RAY INDICES
(Neutron Monitors)

	THULE	ALERT	DEEP RIVER	CALGARY	SULPHUR MT	KIEL	CLIMAX	TOKYO	KULA
Aug. 1978	Average cts/hr	Average cts/hr	Average cts/hr	Average cts/hr	Average cts/hr	Average cts/hr	Average cts/hr	Average cts/hr	Average cts/hr
1		7371.4	6941.5			6254.7		3597.8	
2		7392.5	6934.3			6251.8		3593.9	
3		7362.3	6913.2			6258.8		3589.0	
4		7345.2	6917.3			6244.1		3589.1	
5		7312.6	6906.7			6237.2		3593.7	
6		7350.2	6897.3			6239.5		3590.5	
7		7365.4	6906.4			6261.3		3591.0	
8		—	6909.6			6258.3		3590.4	
9		7392.0(9)	6910.7			6259.1		3591.4(18)	
10		7392.2	6944.3			6253.6		3593.0	
11		7390.4	6968.8			6258.5		3596.6	
12		7366.4	6950.5			6261.5		3601.5	
13		7396.0	6945.9			6278.2		3602.8	
14		7414.1	6954.2			6290.2		3605.8	
15		7417.2	6964.7			6298.3		3607.7	
16		7450.5	6992.5			6303.0		3614.3	
17		7449.2	6957.7			6297.2		3590.0	
18		7390.3	6912.1			6226.3		3565.0	
19		7267.1	6752.3			6102.8		3541.1	
20		7278.3	6799.3			6136.6		3542.7	
21		7305.7	6810.3			6130.4		3548.2	
22		7241.9	6815.0			6121.6		3568.8	
23		7253.8	6832.3			6148.6		3571.9	
24		7364.9	6897.4			6216.7		3587.0	
25		7390.9	6952.5			6258.6		3591.9	
26		7436.3	6979.6			6297.1		3599.8	
27		7390.7	6944.8			6294.1		3602.6	
28		7346.6	6912.8			6268.2		3629.4	
29		7335.2	6875.8			6249.1		3601.4	
30		7331.8	6864.0			6259.3		3583.3	
31		7318.1	6890.7			6250.3		3582.3	
MEAN		7360.6	6908.2			6240.8		3588.8	

Data not available at time of publication (THULE, CALGARY, SULPHUR MT, CLIMAX, KULA)

( ) Number of hours for which data are available if less than 24. Number of Section Hours at Climax if sum of both sections is less than 40 hours.

Notes: Thule, Alert, Calgary, Sulphur Mountain, Kiel, Climax and Kula Scaling Factors = 100. Deep River Scaling Factor = 300. Tokyo Scaling Factor = 256.

ERRATA: May 1978 Deep River and Alert graphical plots were reversed in SGD 407 Part I, page 156, July 1978 issue. The upper curve is actually Deep River data and the lower curve is Alert data. Drs. S. P. Agrawal and D. Venkatesan (The University of Calgary) kindly brought this unfortunate error to our attention.

GEOMAGNETIC ACTIVITY INDICES

AUGUST 1978

Day	Three-Hourly Indices Kp									Three-Hourly Indices Km								Ap	aa *					Cp
		1	2	3	4	5	6	7	8	Sum	1	2	3	4	5	6	7	8		N	S	M			
1	Q4	1-	1	1	1+	1-	0+	1+	2-	8	1-	1	1-	1+	1-	1-	1+	1	4	9	7	8	9	CC	0.1
2	Q6	1-	0+	0	0+	1-	1	2	2	7	1-	0+	0	0	0+	1	2-	2	4	8	7	4	10	CC	0.1
3		2-	3-	2+	3	3+	4-	4-	4	24+	2-	2+	2+	3	3	3+	3	3+	16	35	21	19	38		0.9
4	D5	4+	6-	3	5+	4+	3+	3	2-	31-	4-	5-	3	4+	4-	3-	3	2-	30	54	38	57	36		1.3
5		2	3+	4+	4+	4-	3	4+	4-	29-	2	3-	4-	3+	3+	3-	4-	3	22	43	30	38	36		1.1
6		3-	4-	5-	2	4-	3-	2+	2+	24	3-	3+	4-	2-	3	3-	2	2	16	26	26	27	25		0.9
7		3	1	2-	1	2-	1+	2+	2+	14+	3-	1+	1+	1+	1+	1	2	2	7	15	10	13	12	C	0.4
8		2-	1+	1+	2-	2-	3-	1+	1-	12+	1+	1	1+	2-	2-	2+	1+	1-	6	12	12	9	16	KC	0.3
9	Q8	1	1+	1+	2-	1	1	1+	1+	10	1	1+	1+	2	1-	1-	1+	1	5	7	7	7	8	CC	0.2
10		1+	1+	1+	2-	2+	1+	1+	2+	13	1	1+	2-	2-	2	2	1+	2+	6	10	12	8	15	CC	0.3
11		3-	2-	1+	2-	3	4	3-	1+	18+	2+	2-	1+	2-	2+	3+	2+	1	11	23	14	11	27		0.6
12		2+	4-	5	5-	3	3	2	3	27-	1+	3+	4+	5-	3+	3	2+	3-	21	34	38	48	25		1.1
13		3	2+	2+	3+	3	3-	2+	3	22	3-	2+	2+	3+	4-	2+	2+	3-	13	28	31	25	34		0.7
14		2+	2	2-	1+	1	2-	1+	1-	12	2+	2+	1+	2-	1+	1+	1+	1-	6	16	9	15	11	C	0.3
15	Q3	1-	0	1-	0+	2-	1	2-	1-	7-	1	0	1-	0+	2-	1+	1+	1-	3	9	5	4	10	CC	0.1
16	Q9	0+	0+	0	1	1+	1+	2+	2	9-	0	0	0	1	1	1+	2	2	4	11	9	4	16	CK	0.1
17		1+	1-	1-	3	3+	3-	2+	2+	16+	1+	0+	1-	3	3+	2+	2	2+	9	16	16	13	20		0.5
18		3+	2+	1+	1+	3+	4-	6	4+	26-	3+	2	1+	2-	3	3	5	4+	24	41	33	18	56		1.1
19		4-	1-	3+	3-	3	2	2-	1	18	4-	0+	3	3-	3	2-	1+	1+	11	19	17	21	16		0.6
20	Q1	1-	1	0+	1-	1-	1-	1	1-	6-	1-	1-	0+	0+	0+	1-	1	0+	3	6	4	5	4	CC	0.1
21		1	1-	0+	1-	1-	1+	2	4-	10+	1	1-	0+	1-	1-	1+	1+	3	6	17	10	7	21	KK	0.3
22	Q0	3-	2+	1-	1-	2	1-	1-	1	11-	3-	2	1	1-	1+	0+	0+	1-	6	12	6	11	8	CK	0.2
23	Q5	0+	1	1-	1-	1-	1+	2-	2-	8	0+	1	1-	1-	1-	1	2-	1+	4	11	7	6	13	CC	0.1
24	Q7	2	1	1	1	1	1	1-	1	9-	2	1+	1+	1+	1	1	1-	1-	4	9	9	9	9	CC	0.1
25		2-	1	2-	3	3	2+	2+	2-	17-	1+	1-	2	3-	3-	2+	2	2-	9	16	14	13	18	K	0.5
26	Q2	2-	1	1-	1-	0+	1-	1+	1-	7	1+	1+	0+	0+	1-	1	1+	0+	4	6	7	8	6	C	0.1
27		4	3+	4-	4	5-	4+	4+	4+	33-	4-	3	3	4-	4+	4	4-	4	29	50	41	38	53		1.3
28	D1	4+	7+	8+	8-	8	6+	5-	5	52-	4	6-	7	7	7	5+	4	4+	124	126	156	161	122		1.9
29	D3	6-	5-	6-	5-	5+	3+	3+	3	36-	5	4+	5	4+	5-	3+	3	3-	40	48	67	78	37		1.4
30	D4	4	3	3+	4+	4+	4	5+	5-	33	4-	3	3-	4-	4	4-	5	4	31	46	50	32	65		1.3
31	D2	6-	3+	5-	5	5	6+	4+	3-	37	5-	3	4	4	4+	5	4-	2+	45	55	50	48	58		1.5
																			17	26.5	24.7	25.7			0.63

Day	Three-Hourly Indices Kn								Three-Hourly Indices Ks							
	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
1	1-	1	1-	1+	1+	1	2-	1+	0+	1	1-	1+	0+	0+	1	1-
2	0+	0+	0+	0+	1-	1	2-	2	1-	0+	0	0	0	1-	1+	2
3	2	3-	2+	3	3+	3+	3	3+	2-	2	2	3-	3-	3	3-	3+
4	4-	5	3	5-	4	3	3-	2	4-	4+	3-	4	3+	3-	3	1+
5	2	3	4	3+	4-	3-	3+	3+	2-	3-	4-	3	3+	3-	4-	3
6	3-	4-	4	2	3	3-	3-	2+	2+	3+	4-	2-	3	3-	2-	2-
7	3-	1+	2-	1+	1+	1+	2	2	3-	1	1-	1	1+	1-	2-	2-
8	1+	1-	2-	2-	2-	3-	1+	1+	1+	1+	1	2-	2	2-	1	0+
9	1+	2-	2-	3-	1-	1	1+	1	0+	1+	1	1+	1-	0+	1+	1-
10	1	1+	2	1+	2	2+	2-	2+	1	1+	1+	2-	2	2-	1	2
11	2+	2-	2-	2	3-	3+	2+	1+	2+	1+	1	1+	2+	3	2+	1-
12	2	3+	4+	5-	3	3	2+	3	1	3	4	5-	3+	3-	2	2+
13	3	2+	2+	4-	3+	3-	2+	2+	3-	2+	2+	3+	4-	2	2	3-
14	2	3-	2-	2-	1+	2	2-	1	3-	2+	1	1+	1	1	1	1-
15	1	0+	1-	0+	2	2-	2-	1	1	0	1-	1-	1	1+	1+	0+
16	0	0	0	1+	1+	2-	2+	2+	0	0	0	1-	1-	1+	2	2-
17	2-	0+	1-	3-	3+	3-	2+	3-	1	0+	0+	3+	3	2	1+	2-
18	3	2+	2-	2	3+	3+	5-	4	3+	2-	1+	2-	2+	3	5+	5-
19	3+	0+	3+	3	3	2	2-	2-	4	0+	2+	2+	3-	1+	1	1-
20	1	1-	0+	1-	1-	1	1+	1	0+	1	0+	0+	0+	0+	1-	0
21	1	1-	0+	1	1	1+	2-	3+	1	1	0+	0+	1-	1+	1+	3
22	2+	2-	1+	1	2-	1-	1	1	3-	2+	1	0+	1-	0+	0	0+
23	0+	1	1-	1	1	1+	2-	1+	0+	1	1-	1-	1-	1-	2-	1+
24	2	1+	1+	1+	1	1+	1	1	2	1	1	1	1-	1-	0+	0+
25	1+	1-	2+	3-	3	3-	2+	2-	1+	1-	2-	3-	2	2	2	1+
26	1+	1+	0+	0+	1-	1	1+	0+	1	1	1-	0+	1-	1	2-	1-
27	4-	3	3	4	4+	4	4	4-	3+	3+	3	3+	4+	4-	3+	4+
28	3+	6	7+	7+	7	5	4-	4+	4+	6-	7-	7-	7-	6-	4+	5-
29	5	4	5	4+	5-	3+	3	3-	5+	5-	5+	4+	5-	3+	3-	3-
30	4-	3	3	4	4	4-	4+	4-	3+	3	3-	4-	4	4-	5+	4
31	5-	3	5-	5-	4+	5+	4-	2+	5-	3	4-	3+	4	5-	4-	2+

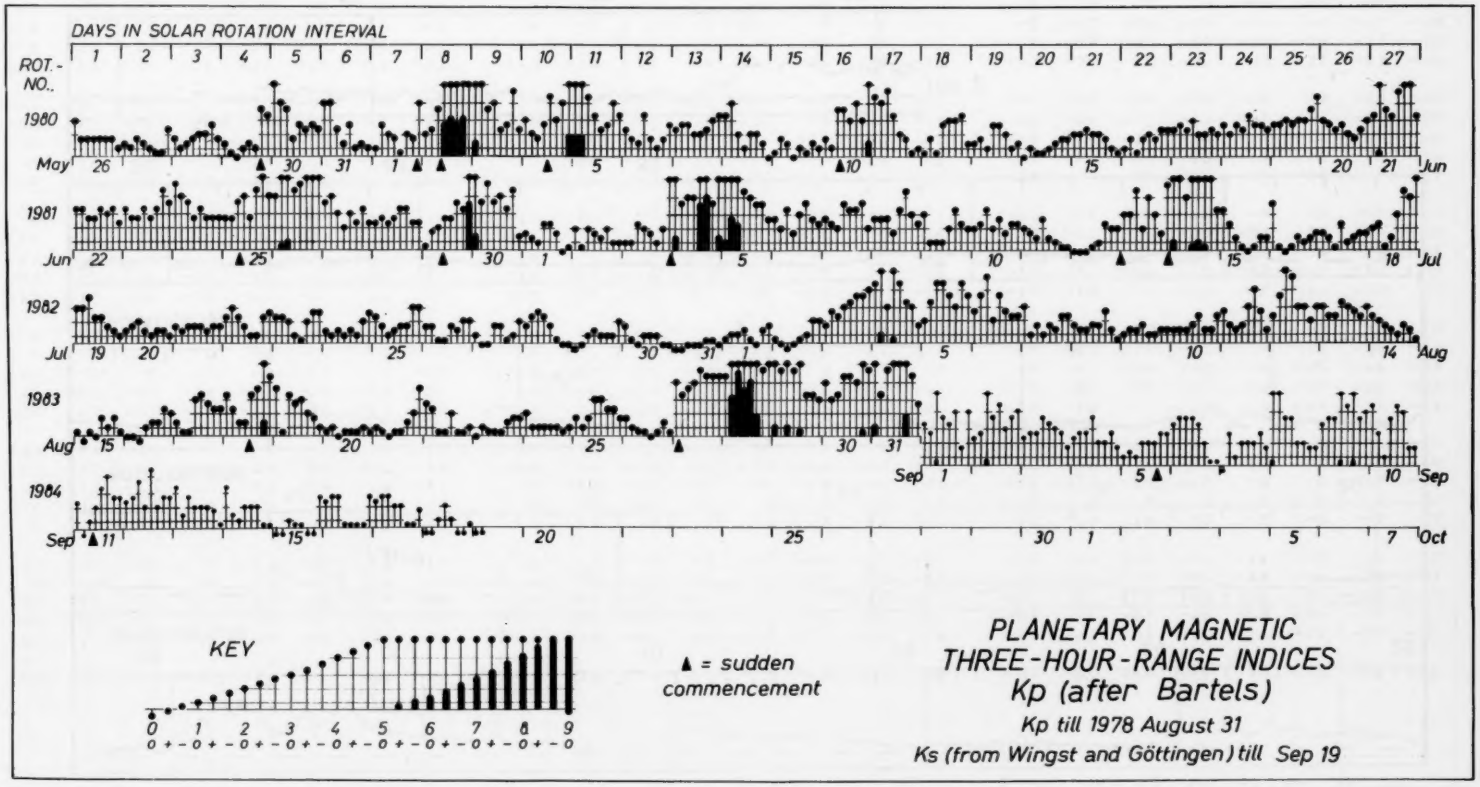
Quiet days (Q) and disturbed days (D), geomagnetic planetary three-hour-range indices (Kp) (integers alone are equivalent to those normally given with a small zero), magnetic character figures (Cp), and average amplitude (Ap) (unit 2γ) prepared by Geophysikalisches Institut at the University of Göttingen, F.R. of Germany for the International Service of Geomagnetic Indices. Ten most quiet days [Q1-Q0(10)] and five most disturbed days [D1-D5] are ordered from most quiet or disturbed, respectively. A or K means "not really quiet" (A = "Ap>6", K = "Ap ≤6 but one Kp ≥3o or two Kp values ≥3-"). An * means "not really disturbed" (Ap<20).

Geomagnetic three-hourly indices (Kn), (Ks) and (Km) as in IAGA-Bulletin No. 32 and indices (aa), "antipodal", as in IAGA-Bulletin No. 33 prepared by P. N. Mayaud of the Institut de Physique du Globe, Paris, France. Really quiet (C) and quiet but slightly disturbed three-hourly intervals (K) are given for 24-hour and 48-hour intervals centered on 12 UT.

DAILY AVERAGE INDICES Ap

	1977				1978							
DAY	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG
1	4	4	5	6	7	15	33	12	88	9	6	4
2	6	5	6	69	8	14	27	15	94	82	5	4
3	8	10	4	9	13	14	15	41	83	31	11	16
4	6	7	8	14	89	11	3	55	96	26	80	30
5	3	8	10	18	31	17	6	21	7	38	53	22
6	4	8	7	5	34	14	7	9	5	8	13	16
7	6	3	5	3	13	7	9	5	7	11	14	7
8	8	6	3	2	19	10	20	5	16	10	14	6
9	11	2	3	3	23	16	14	6	85	4	8	5
10	13	4	9	4	21	7	12	36	10	24	10	6
11	19	12	6	38	7	5	7	64	30	17	6	11
12	6	28	18	21	4	10	3	29	18	10	4	21
13	28	14	26	16	8	8	12	24	11	7	20	13
14	10	13	42	8	3	11	10	51	9	4	48	6
15	9	19	25	5	2	48	17	19	5	6	6	3
16	7	8	14	9	14	11	24	8	7	6	6	4
17	10	12	8	12	9	10	25	7	8	9	6	9
18	6	22	6	3	12	10	24	19	5	11	18	24
19	42	28	6	3	6	12	15	38	4	17	11	11
20	44	7	4	4	3	12	9	23	8	11	5	3
21	64	5	5	6	1	12	7	9	26	33	6	6
22	63	22	3	6	3	22	13	8	24	15	8	6
23	21	6	2	4	2	6	15	22	24	18	8	4
24	12	6	2	5	6	5	6	48	26	19	6	4
25	10	4	15	5	12	12	3	17	10	24	8	9
26	18	6	19	11	12	37	49	18	7	46	5	4
27	24	62	12	6	5	42	70	16	5	15	4	29
28	9	47	5	10	9	46	17	12	7	12	6	124
29	3	9	6	8	36		14	6	8	32	4	40
30	4	9	12	5	36		16	58	18	31	3	31
31		6		6	23		8		12		2	45
MEAN	16	13	10	10	15	16	16	23	25	20	13	17

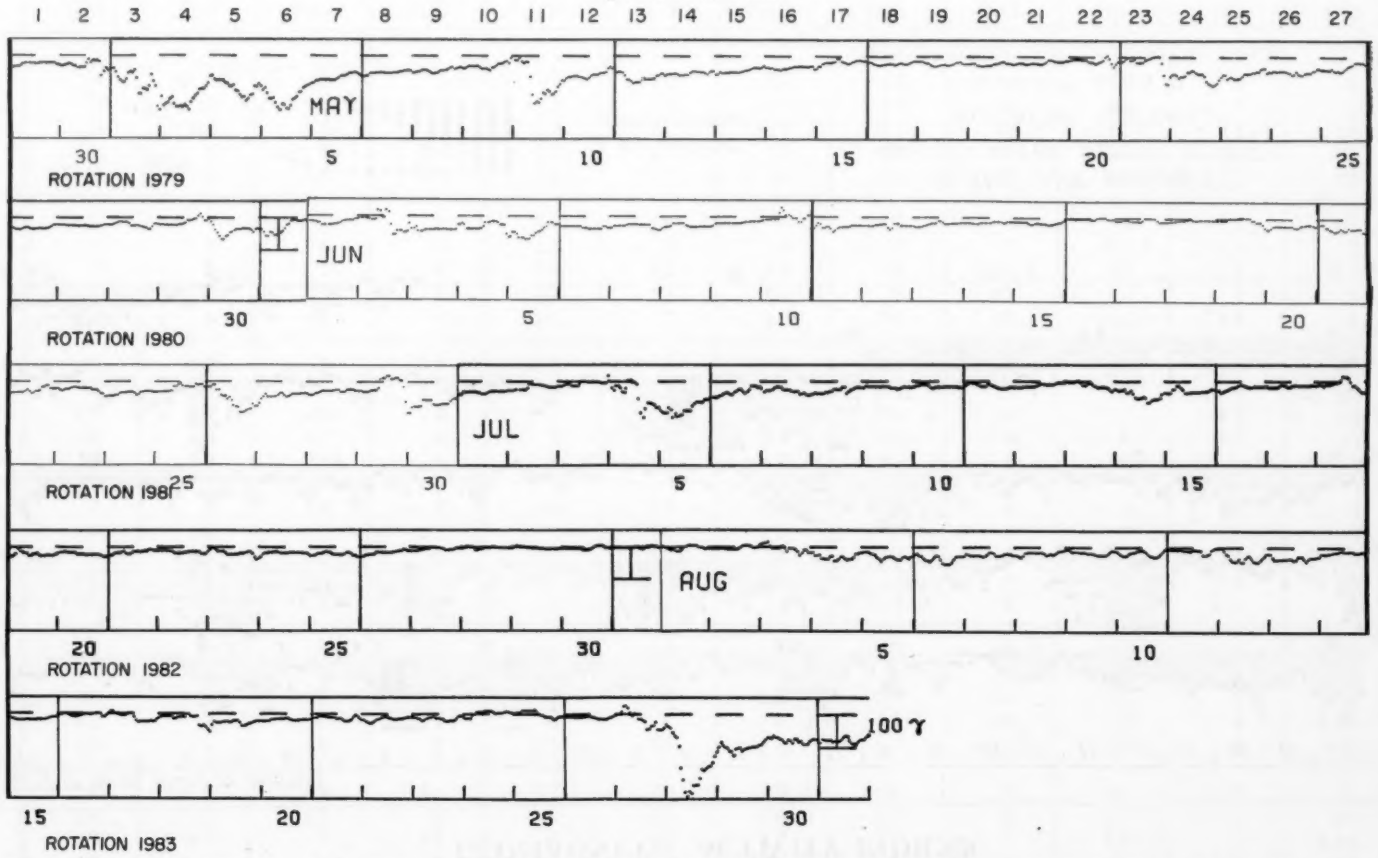
GEOMAGNETIC ACTIVITY INDICES



GEOMAGNETIC ACTIVITY INDICES

Hourly Equatorial Dst

by Bartels Rotation



Note: Both the sensitivity indicator placed on the last day of the month and the zero reference level change from month to month.

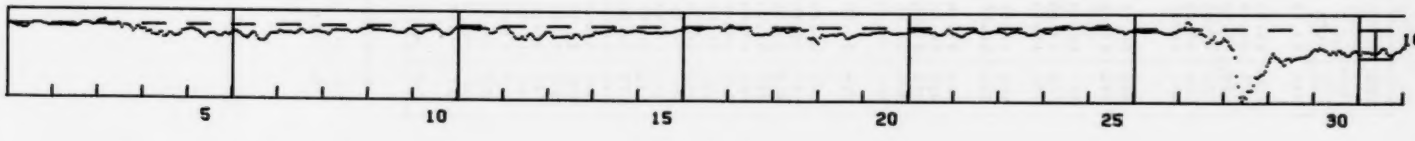
HOURLY EQUATORIAL Dst VALUES (PROVISIONAL)

AUGUST 1978

NASA/GODDARD SPACE FLIGHT CENTER

(Time-UT) (Units-Gammas)

DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	3	-1	-5	-8	-11	-11	-11	-14	-13	-14	-9	-1	0	4	4	3	2	2	-2	-3	-4	-7	-6	-7
2	-6	-7	-7	-7	-5	-4	-7	-8	-9	-9	-9	-10	-8	-6	-3	3	5	5	3	1	-3	-3	-2	6
3	10	12	12	14	2	-5	-6	-4	-4	-2	3	-5	-14	-5	-5	-6	-9	-15	-26	-19	-10	-9	-17	-19
4	-16	-27	-26	-24	-35	-37	-38	-37	-29	-27	-43	-42	-37	-30	-31	-37	-40	-37	-37	-32	-22	-20	-17	-16
5	-14	-14	-15	-21	-22	-25	-32	-37	-43	-37	-31	-29	-28	-30	-34	-38	-39	-39	-32	-28	-33	-37	-30	-25
6	-21	-20	-27	-29	-35	-40	-42	-45	-38	-32	-26	-29	-38	-49	-53	-53	-52	-47	-38	-30	-27	-29	-28	-26
7	-20	-23	-26	-26	-26	-25	-25	-28	-30	-26	-21	-15	-16	-19	-26	-27	-27	-24	-20	-19	-21	-21	-25	-25
8	-26	-29	-33	-26	-18	-16	-14	-16	-17	-17	-16	-15	-16	-19	-25	-22	-19	-24	-20	-16	-12	-12	-10	-8
9	-6	-10	-15	-13	-14	-15	-17	-16	-15	-19	-17	-19	-21	-22	-25	-25	-24	-24	-25	-19	-13	-10	-10	-13
10	-17	-22	-26	-27	-24	-18	-15	-14	-13	-11	-9	-10	-10	-14	-20	-26	-28	-30	-29	-25	-19	-13	-7	-7
11	-6	-8	-7	-6	-7	-7	-9	-11	-11	-11	-13	-8	-7	-7	-10	-11	-23	-24	-22	-18	-9	-5	-2	-3
12	-1	-2	-11	-19	-24	-35	-42	-43	-41	-35	-44	-46	-33	-26	-25	-34	-41	-45	-44	-39	-33	-27	-20	-20
13	-20	-31	-38	-37	-36	-36	-35	-36	-34	-34	-34	-39	-37	-28	-28	-28	-35	-42	-35	-31	-32	-31	-29	-27
14	-20	-19	-22	-18	-18	-16	-14	-13	-13	-11	-12	-13	-13	-13	-12	-12	-17	-17	-15	-13	-13	-12	-12	-14
15	-15	-15	-16	-19	-21	-21	-19	-19	-18	-18	-20	-21	-20	-18	-17	-19	-19	-18	-15	-13	-12	-11	-10	-7
16	-4	-2	1	-1	-4	-7	-10	-11	-9	-7	-4	-2	-1	0	-3	-2	0	-1	2	-1	-11	-9	-4	2
17	8	6	1	-2	-5	-6	-6	-4	0	1	2	-11	-20	-26	-23	-24	-24	-23	-24	-21	-24	-22	-16	-12
18	-9	-7	-8	-9	-8	-8	-14	-14	-10	-10	-10	-11	-2	0	-8	-10	-9	-7	-36	-38	-34	-39	-46	-54
19	-33	-23	-27	-28	-27	-24	-23	-22	-26	-24	-20	-20	-19	-26	-36	-37	-33	-29	-27	-25	-22	-20	-22	-22
20	-22	-21	-22	-20	-16	-16	-14	-13	-14	-14	-14	-12	-13	-16	-19	-20	-18	-18	-17	-16	-16	-17	-17	-14
21	-12	-11	-10	-7	-7	-7	-9	-11	-11	-12	-12	-14	-14	-13	-18	-22	-23	-22	-17	-10	-3	-8	-13	-18
22	-18	-23	-26	-28	-26	-21	-16	-14	-12	-9	-10	-10	-13	-14	-17	-17	-13	-13	-13	-12	-10	-9	-10	-10
23	-10	-13	-15	-20	-18	-14	-12	-11	-9	-10	-13	-13	-14	-15	-20	-22	-19	-20	-20	-15	-8	-5	-7	-12
24	-14	-13	-13	-4	0	5	7	7	8	10	10	10	8	4	0	4	3	4	6	8	7	4	2	2
25	3	5	6	11	11	11	11	12	9	14	9	2	-3	-3	-8	-9	-8	-10	-15	-13	-9	-6	-7	-7
26	-8	-9	-9	-10	-11	-11	-11	-10	-8	-7	-6	-8	-10	-11	-13	-15	-15	-16	-15	-14	-11	-9	-6	-2
27	0	0	6	23	25	17	3	-5	2	-2	-15	-15	-19	-23	-45	-43	-36	-33	-23	-46	-46	-44	-39	-31
28	-37	-41	-55	-63	-69	-95	-159	-193	-230	-242	-226	-233	-208	-207	-208	-187	-161	-165	-158	-152	-150	-141	-122	-110
29	-95	-82	-91	-96	-99	-107	-110	-120	-101	-98	-97	-108	-102	-99	-96	-95	-93	-95	-93	-88	-88	-81	-74	-67
30	-66	-70	-62	-66	-68	-71	-74	-82	-64	-74	-76	-83	-71	-70	-80	-77	-66	-86	-87	-79	-74	-71	-75	-84
31	-65	-73	-76	-77	-75	-75	-82	-78	-63	-78	-73	-65	-62	-65	-76	-85	-87	-90	-82	-75	-73	-73	-66	-61



PRINCIPAL MAGNETIC STORMS

AUGUST 1978

OBS. 3 letter IAGA code	GEOMAG-NETIC LATI-TUDE	COMMENCEMENT DAY	hr min (UT)	TYPE	SC - AMPLITUDES D(')	H(γ)	Z(γ)	MAXIMUM 3 HOUR - INDEX K DAY(3 HOUR PERIOD)	K	RANGES D(')	H(γ)	Z(γ)	UT END DAY	HOUR
HYB	07.6N	2	2040	..	..	..	..	04(4)	5	8	151	38	06	22
COL	64.6N	3	02--	..	..	..	..	04(2,4) 05(3,4) 06(3)	6	140	1410	620	06	18
SIT	60.1N	3	11--	..	..	..	..	06(3)	7	90	590	510	06	22
NEW	55.1N	3	03--	..	..	..	..	04(2)	6	37	110	168	07	04
FRD	49.6N	3	19--	..	..	..	..	04(2,4) 05(3) 06(3)	5	20	131	72	06	15
GUA	04.0N	3	2115	..	..	..	..	04(4)	5	10	110	10	04	21
KGL	56.5S	3	03--	..	..	..	..	03(8) 04(1,2,7) 05(7,8)	4	--	--	--	07	03
NEW	55.1N	11	22--	..	..	..	..	12(3)	6	40	137	194	14	08
HYB	07.6N	11	0900	..	..	..	..	12(4,5)	5	5	121	31	13	19
SIT	60.1N	12	02--	..	..	..	..	12(3)	7	--	540	480	13	14
FRD	49.6N	12	02--	..	..	..	..	12(3)	6	26	90	60	14	06
TOO	46.7S	12	05--	..	..	..	..	12(3,4) 13(5)	5	16	130	45	14	11
TOO	46.7S	17	11--	..	..	..	..	18(7)	5	17	80	20	19	16
KGL	56.5S	17	09--	..	..	..	..	18(1)	4	--	--	--	18	06
NEW	55.1N	18	1242	SC	2	9	--	18(6,7)	5	31	146	58	20	03
WIT	54.2N	18	1242	SC*	- 1	+10 *	0	18(7)	6	35	165	45	19	02
HYB	07.6N	18	1241	SC	- .2	+17	- 1	18(7,8)	5	7	87	19	19	20
HUA	00.6S	18	1242	SC	--	7	2	18(6,7)	5	--	278	41	19	03
KGL	56.5S	18	1241	SC*	--	--	--	18(7)	7	--	--	--	19	21
HYB	07.6N	21	2004	SC	- .1	+ 5	- 1	21(8) 22(1)	3	8	72	27	22	15
COL	64.6N	27	0246	SC*	-23	+100	-16	28(3,4,5)	8	499	2430	1710	02	15
SIT	60.1N	27	0248	SC*	- 5.3*	+56.2*	+11.1	28(3)	9	250	--	--	02	19
NEW	55.1N	27	0246	SC*	2	53	6	28(3,4)	9	157	1204	1384	05	09
WIT	54.2N	27	0247	SC*	- 8 *	+39	0	28(2,3)	7	32	460	300	31	21
FRD	49.6N	27	0247	SC*	+ 3	+55	- 9	28(3)	8	90	560	375	03	15
SJG	29.9N	27	0246	SC	+ .5	+26	+ 7	29(1)	6	16	198	60	29	15
GUL	24.5N	27	0246	SC	- .4	26	- 1	--	-	17	347	97	31	23
JAI	17.3N	27	0246	SC	- .5	29	- 5	--	-	13	327	63	31	23
SHL	14.6N	27	0246	SC	.8	32	5	--	-	8	--	51	31	23
UJJ	13.5N	27	0246	SC	--	--	--	--	-	10	416	70	31	23
AEG	09.5N	27	0246	SC	- .4	33	- 5	28(3)	7	13	370	69	31	23
HYB	07.6N	27	2200	..	..	..	..	28(3,4,5)	8	10	295	47	31	22
HYB	07.6N	27	0246	SC	- .2	+37	- 5	27(5,6)	5	5	178	39	27	20
GUA	04.0N	27	0246	SC	--	+43	-12	28(5)	7	10	430	40	31	18
ANN	01.4N	27	0246	SC	- 1.4	57	21	--	-	9	435	--	31	23
HUA	00.6S	27	0246	SC	--	47	7	28(6)	7	--	356	50	29	09
TRD	01.2S	27	0246	SC	.1	52	57	--	-	7	476	237	31	23
PHG	18.7S	27	0246	SC*	+ .2*	+36	+36	28(2,3,5)	7	12	450	140	01	00
HER	33.7S	27	0246	SC*	+ 4	+22	+19	28(3)	7	54	293	150	29	16
GNA	43.3S	27	0246	SC*	- 2.2*	+ 6	- 6 *	28(2,3,4,5,6)	7	41	200	180	29	18
TOO	46.7S	27	0245	SC	- 1	+13	+ 6	28(3,4)	7	80	340	310	03	16
KGL	56.5S	27	0247	SC*	--	--	--	28(5)	9	--	--	--	29	09
HUA	00.6S	30	0110	..	..	..	..	30(6,7)	5	--	274	49	31	00

Reports were received from the following observatories:

Alibag Annamalainagar College Fredericksburg Gnangara Guam Gulmarg Hermanus Huancayo
Hyderabad Irkutsk Jaipur Newport Port Moresby San Juan Shillong Toolangi Trivandrum
Ujjain Witteveen

Please note: The Boulder Geomagnetic Observatory converted to digital format in March 1978. Since that time, data which were reduced from the anolog recordings are no longer available, e.g., Principal magnetic storms and K indices.

SUDDEN COMMENCEMENTS AND SOLAR FLARE EFFECTS

AUGUST 1978

PRELIMINARY REPORT ON RAPID MAGNETIC VARIATIONS (by Dr. A. Romaná).

The meaning of the station symbols is given in the IAGA-News No. 16.
Times of ssc are mean values.

Sudden commencements followed by a magnetic storm or a period of storminess (ssc)

18 1242 B: SOD DOB WNG DOU FUR TOL KAK KSA HUA LMN PAF
C: WIT NGK VIC EBR MMB CZT

27 0246 A: SOD DOB NUR ESK DOU VIC FUR MMB EBR COI TOL FRD KAK KSA HAZ KNY
HUA LMN PAF DRV
B: WNG WIT HAD AQU CZT
C: NGK

Solar-flare effects (sfe)

Effects confirmed by ionospheric or solar observations are underlined.

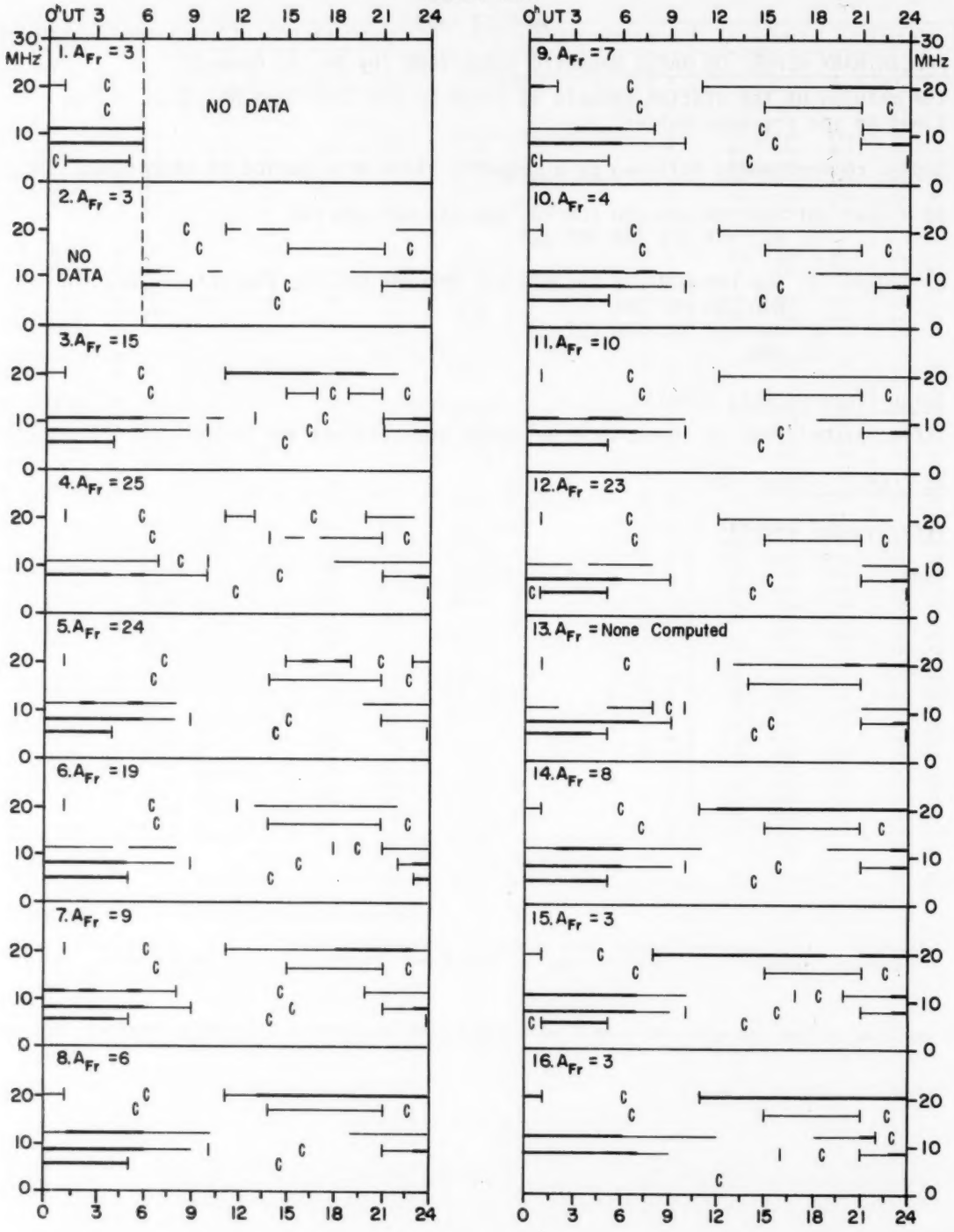
22 0912 - 0922 HUA

Very unusual events

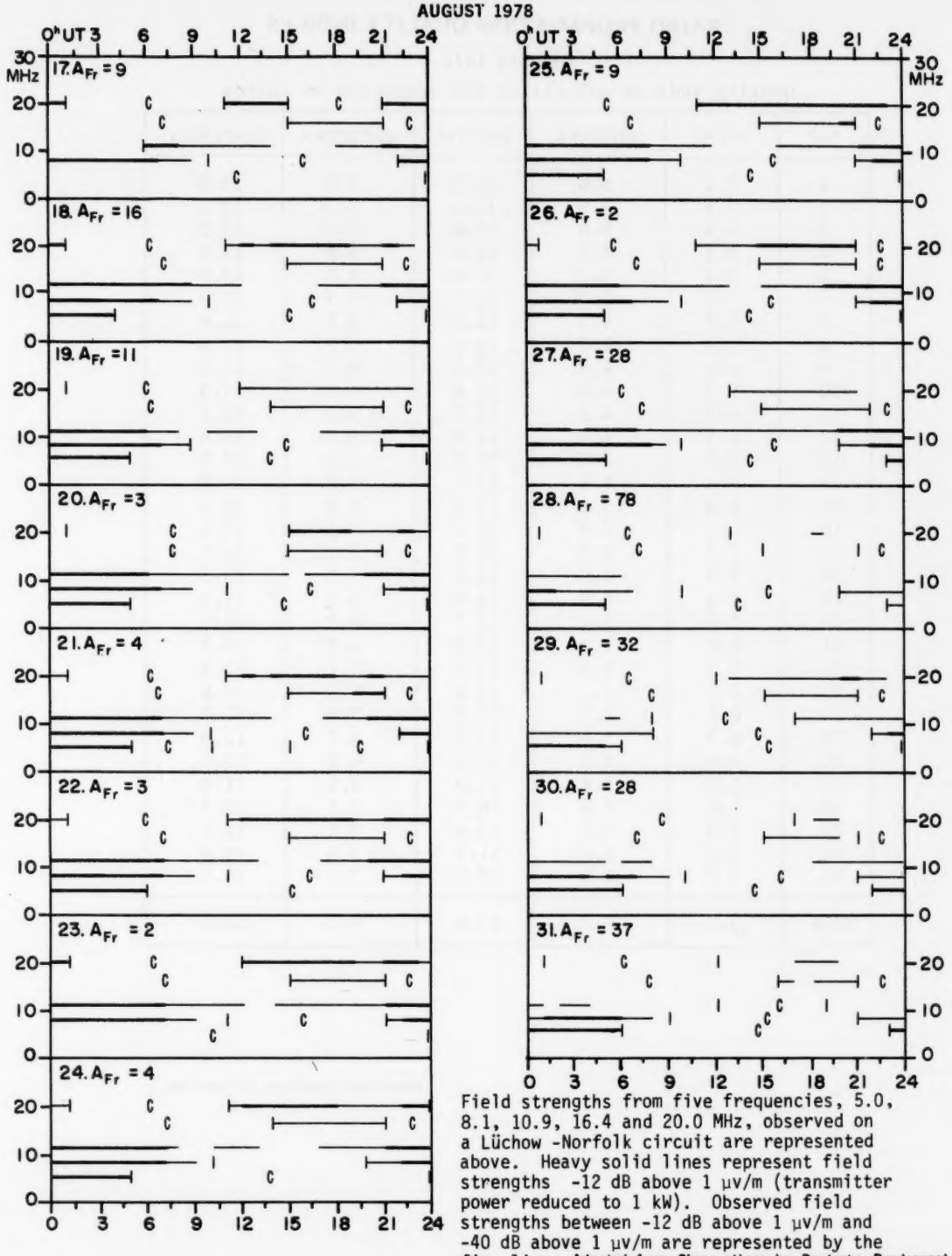
none

TRANSMISSION FREQUENCY RANGES -- NORTH ATLANTIC PATH

AUGUST 1978


0 UT 3 6 9 12 15 18 21 24
MHz
1. A_{Fr} = 3
NO DATA
2. A_{Fr} = 3
NO DATA
3. A_{Fr} = 15
4. A_{Fr} = 25
5. A_{Fr} = 24
6. A_{Fr} = 19
7. A_{Fr} = 9
8. A_{Fr} = 6
9. A_{Fr} = 7
10. A_{Fr} = 4
11. A_{Fr} = 10
12. A_{Fr} = 23
13. A_{Fr} = None Computed
14. A_{Fr} = 8
15. A_{Fr} = 3
16. A_{Fr} = 3
0 3 6 9 12 15 18 21 24

TRANSMISSION FREQUENCY RANGES -- NORTH ATLANTIC PATH



Field strengths from five frequencies, 5.0, 8.1, 10.9, 16.4 and 20.0 MHz, observed on a Lüchow -Norfolk circuit are represented above. Heavy solid lines represent field strengths -12 dB above 1 μv/m (transmitter power reduced to 1 kW). Observed field strengths between -12 dB above 1 μv/m and -40 dB above 1 μv/m are represented by the fine line. Adapted from Observations by Deutsche Bundespost

RADIO PROPAGATION QUALITY INDICES

AUGUST 1978

Quality indices calculated for reception at Lüchow

DAY	TOKYO	NORFOLK	MOSCOW	CANBERRA	BRACKNELL
1	7.2	5.6	12.5	5.0	13.0
2	7.6	3.9	12.4	5.2	12.8
3	4.9	5.0	11.6	5.0	12.3
4	4.4	4.7	11.6	4.8	11.8
5	3.8	4.1	11.9	4.4	12.6
6	3.5	3.3	11.1	4.5	12.2
7	5.8	4.3	11.1	3.9	11.9
8	6.6	4.9	12.0	4.0	12.0
9	6.4	4.9	12.5	4.5	12.5
10	5.3	4.8	11.4	4.2	12.3
11	6.3	4.2	11.7	4.8	12.1
12	4.3	4.2	11.8	5.2	11.8
13	5.9	4.1	11.5	5.0	12.2
14	7.1	5.6	11.1	5.0	11.9
15	6.8	5.2	11.2	4.8	12.1
16	7.2	5.9	11.2	5.3	12.5
17	6.7	5.5	11.9	5.1	12.7
18	5.2	5.5	11.5	4.3	12.5
19	5.2	4.5	11.6	4.3	12.3
20	5.6	5.4	11.7	4.8	12.1
21	6.0	5.2	12.2	4.8	12.5
22	5.3	5.5	11.4	5.1	11.9
23	5.5	5.7	12.2	4.7	12.6
24	6.1	4.9	11.8	5.0	12.2
25	6.7	5.4	12.1	4.9	12.8
26	5.4	5.0	11.8	4.3	13.0
27	4.8	4.8	11.3	4.3	11.9
28	1.6	2.0	10.3	2.5	10.3
29	2.3	4.5	11.9	4.2	11.7
30	3.0	3.7	11.2	3.0	10.4
31	2.8	2.6	10.2	3.2	10.7
MEAN	5.3	4.7	11.6	4.5	12.1

USCOMM-NOAA-ASHEVILLE, NC-10/78/950

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Data
Explan

OCTOBER 1978 Number 410 - Part II

Solar-Geophysical Data
comprehensive reports

Data for April 1978 -- March 1978 & Miscellanea
Explanation of Data Reports Issued as Number 402 (Supplement) February 1978

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noaa NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION / ENVIRONMENTAL DATA AND INFORMATION SERVICE / BOULDER, COLORADO

U.S. DEPARTMENT OF COMMERCE
Juanita M. Kreps, Secretary
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
Richard A. Frank, Administrator
ENVIRONMENTAL DATA AND INFORMATION SERVICE
Thomas S. Austin, Director

Solar - Geophysical Data

NO. 410 OCTOBER 1978

Part II (Comprehensive Reports)

DATA FOR
APRIL 1978
MARCH 1978
& MISCELLANEA

NATIONAL GEOPHYSICAL AND SOLAR - TERRESTRIAL DATA CENTER
BOULDER, COLORADO

For obtaining bulletins on a data exchange basis, send request to: World Data Center A for Solar-Terrestrial Physics, NOAA, Boulder, Colorado 80303.

For sale through the National Geophysical and Solar-Terrestrial Data Center, NOAA, Boulder, CO 80303. Subscription Price: $34.00 annually for both part I (Prompt Reports) and part II (Comprehensive Reports) or $18.00 annually for either part. Annual supplement containing explanation is included. For foreign mailing add $32.00 for both parts or $16.00 for either part. Single issue price is $1.50 for either part and $1.40 for the extra issue. Make checks and money orders payable to: Department of Commerce, NOAA/NGSDC.

To standardize referencing these reports in the open literature, the following format is recommended:

Solar-Geophysical Data, 390 Part I (or Part II), pages, February 1977, U.S. Department of Commerce, (Boulder, Colorado, U.S.A. 80303).

SOLAR-GEOPHYSICAL DATA

No. 410

Issued in two parts

Helen E. Coffey, Editor

J. Virginia Lincoln, Chief
Solar-Terrestrial Physics Division

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H.62	Abbreviated Calendar Record	408B 70	409B 40	410B 72						

Notes:

"398A 36" listed under 1977 Aug means that data for August 1977 were contained in Solar-Geophysical Data Number 398 - Part I, beginning on page 36.

A = Part I, B = Part II.

--- = no data available.
blank = data not yet received.

APRIL 1978 DATA

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ACTIVE REGIONS

CARRINGTON ROTATION 1666

(March 13 to April 9, 1978)

Region No.	Coordinates Lat.	Coordinates Long.	Age at CMP	IMP.	Spot-less Region	Region No. in Rotation 1665	Activity at West Limb
1	2°S	355°	>6	2			decreasing
2	26 N	351	>6	1	x	(2)	decreasing
3	16 N	350	>6	6			decreasing
4	27 S	346	>6	1	x	(4)	dispersed
5	30 N	341	>6	1	x		dispersed
6	24 S	324	-2	1	x		dispersed
7	31 S	316	>6	6			decreasing
8	18 N	286	+1	2			decreasing
9	39 S	278	-2	3			increasing
10	32 N	268	>6	3			decreasing
11	20 N	266	>6	3			decreasing
12	11 N	261	0	1	x		dispersed
13	26 N	258	+3	1	x		decreasing
14	38 N	255	>6	1	x		dispersed
15	32 S	254	+3	1	x		disappeared
16	25 N	246	>6	1	x	(14)	decreasing
17	32 N	246	>6	1	x	(13)	decreasing
18	22 N	231	>6	3		(16)	decreasing
19	31 S	225	+1	1	x		disappeared
20	25 N	220	>6	1	x	(16)	dispersed
21	34 N	218	+3	1	x		disappeared
22	26 N	211	>6	1	x	(17)	decreasing
23	29 S	204	>6	1	x		disappeared
24	15 S	194	>6	1	x		dispersed
25	30 S	193	0	3			stable
26	21 N	186	+5	1	x		dispersed
27	22 S	183	>6	2			decreasing
28	17 N	181	>6	2			decreasing
29	38 N	180	>6	1	x	(18)	dispersed
30	17 N	173	>6	2			decreasing
31	17 S	173	>6	1	x	(21)	dispersed
32	37 N	171	>6	2			decreasing
33	18 S	161	>6	1	x		decreasing
34	23 S	156	>6	1	x	(23)	dispersed
35	21 S	150	>6	1	x	(24)	decreasing
36	28 N	147	-3	1	x		stable
37	22 S	146	>6	1	x	(26)	decreasing
38	29 S	139	>6	1	x	(28)	decreasing
39	14 N	138	0	1	x		dispersed
40	29 N	137	>6	1	x		dispersed
41	21 N	136	>6	1	x		disappeared
42	38 N	134	>6	1	x		disappeared
43	11 N	130	-3	1	x		increasing
44	28 S	108	>6	1	x		disappeared
45	12 N	93	>6	1	x		decreasing
46	22 N	89	>6	1	x		decreasing
47	18 S	77	+5	2			decreasing
48	21 N	77	>6	1	x	(31)	stable
49	14 S	73	-2	1	x		dispersed
50	23 N	73	0	5			increasing
51	15 S	62	>6	2			decreasing
52	32 N	60	+6	2			decreasing
53	35 N	46	-2	1	x		stable
54	17 N	38	>6	4			decreasing
55	23 N	19	>6	4		(35)	decreasing
56	26 S	6	+5	2			decreasing
57	26 S	6	-2	2			decreasing
58	15 N	5	>6	2			decreasing
59	32 N	2	>6	1	x		dispersed

ACTIVE REGIONS

CARRINGTON ROTATION 1667

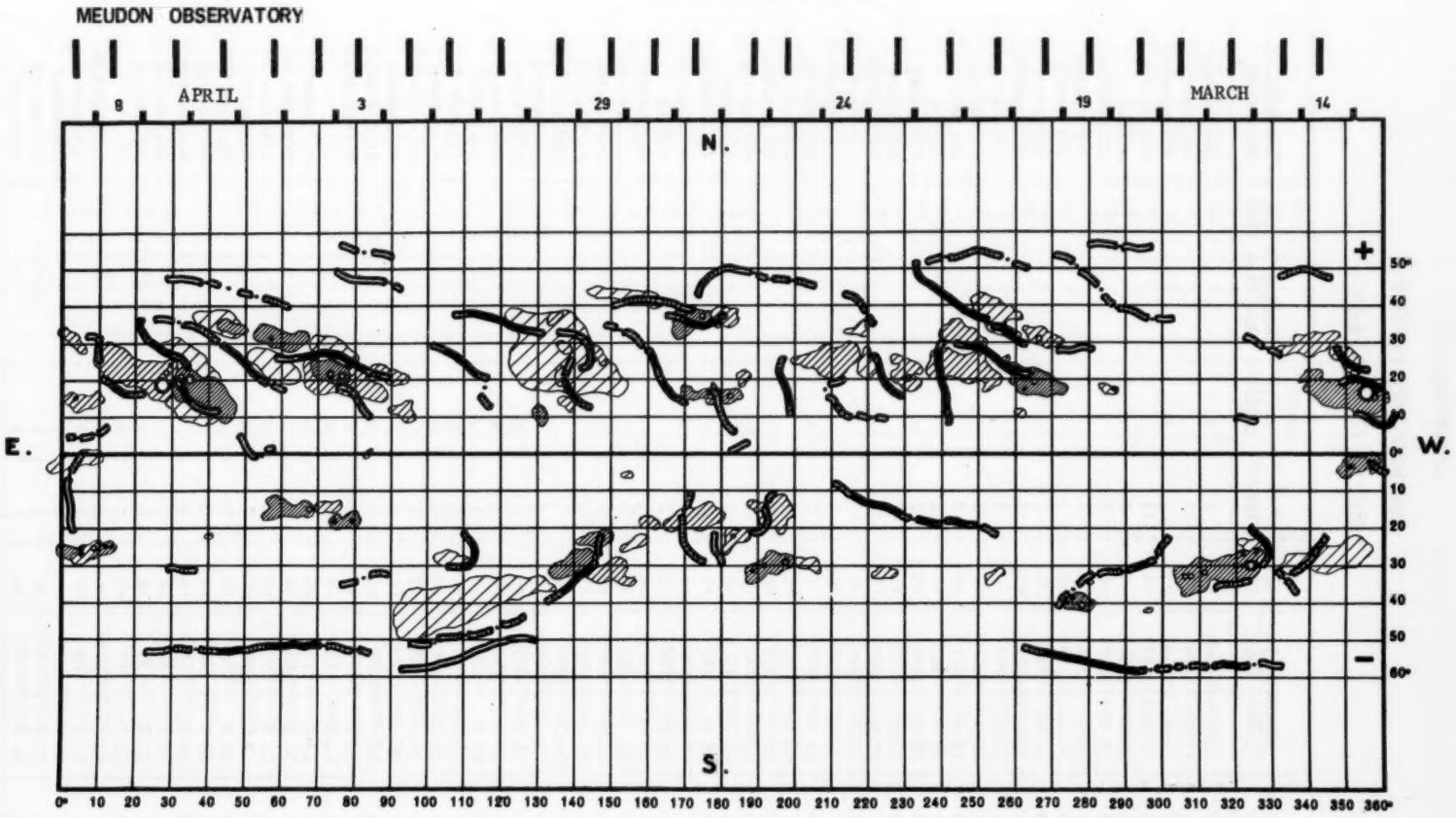
(April 9 to May 6, 1978)

Region No.	Coordinates Lat.	Coordinates Long.	Age at CMP	IMP.	Spot-less Region	Region No. in Rotation 1666	Activity at West Limb
1	12°N	356°	+6	1	x		decreasing
2	18 N	350	>6	2			decreasing
3	15 S	348	+3	1	x		disappeared
4	17 N	337	+6	2			decreasing
5	18 N	331	-4	2			stable
6	29 S	329	>6	3			decreasing
7	20 N	308	-1	2			decreasing
8	34 S	307	>6	2			dispersed
9	34 S	304	>6	1	x		dispersed
10	20 N	301	+3	2			decreasing
11	15 N	297	0	3			decreasing
12	19 S	291	+1	2			decreasing
13	16 N	287	>6	3			increasing
14	10 N	285	-6	2			(?)
15	38 S	284	>6	1	x		dispersed
16	19 N	280	+1	2			dispersed
17	19 N	269	>6	3		(11)	decreasing
18	20 N	261	-3	3			increasing
19	25 S	260	+6	1	x		disappeared
20	41 N	250	-1	1	x		decreasing
21	42 S	247	>6	2			decreasing
22	30 N	213	+6	2			decreasing
23	17 N	211	-1	2			decreasing
24	29 S	202	>6	1	x		dispersed
25	30 S	199	+1	2			decreasing
26	28 N	194	>6	1	x		decreasing
27	30 S	194	-3	2			stable
28	29 S	190	>6	2			decreasing
29	22 N	189	+4	4			decreasing
30	18 N	187	+4	2			decreasing
31	15 N	182	-1	2			increasing
32	24 N	166	+2	2			decreasing
33	18 S	165	>6	3			decreasing
34	11 N	148	>6	1	x		dispersed
35	26 N	147	>6	1	x		dispersed
36	27 S	146	>6	1	x		dispersed
37	19 N	145	>6	1	x		dispersed
38	22 N	144	>6	1	x		dispersed
39	29 N	140	-3	2			increasing
40	30 N	133	+1	2			decreasing
41	14 N	128	+5	1	x		disappeared
42	32 S	115	+3	1	x		disappeared
43	13 N	113	-5	1	x		(?)
44	23 S	111	+6	1	x		disappeared
45	24 S	105	+4	1	x		disappeared
46	14 S	99	+2	1	x		disappeared
47	2 N	98	+6	1	x		disappeared
48	32 N	93	0	1	x		disappeared
49	18 N	87	>6	5			decreasing
50	24 N	68	>6	6			decreasing
51	23 N	52	>6	5			decreasing
52	21 N	39	>6	1	x	(54)	decreasing
53	22 S	27	-5	1	x		(?)
54	41 N	27	>6	1	x		disappeared
55	23 S	26	>6	1	x		disappeared
56	28 N	25	>6	1	x		dispersed
57	27 S	8	>6	1	x	(56+57)	decreasing
58	19 N	7	>6	1	x		dispersed

SYNOPTIC SOLAR MAP

CARRINGTON ROTATION 1666

MARCH 13 TO APRIL 9, 1978

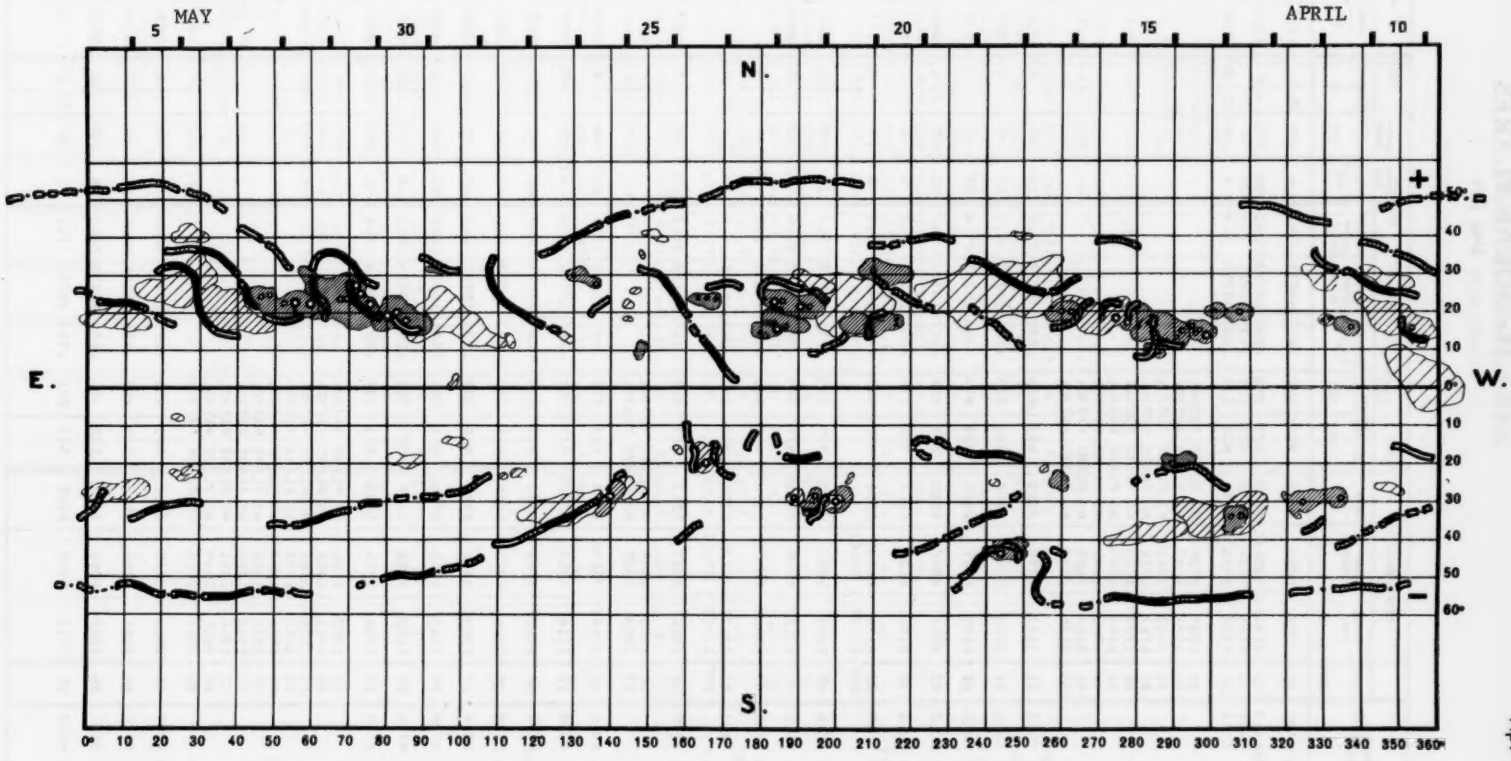


SYNOPTIC SOLAR MAP

CARRINGTON ROTATION 1667

APRIL 9 TO MAY 6, 1978

MEUDON OBSERVATORY



7 Apr 78

Hα SOLAR FLARES

APRIL 1978

OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IMPOR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMR DAY	MIN.		CONC	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR AREA Sq. Deg.	
	APR																
618 KANZ	01	0729	0729	0733	N21	E77	.986	15221	7.1	4	-F	2					Y5
GRP66619	01	0804>9	0824+1	0829	N20	E80	.992	15221	7.3	25	-F						
KANZ	01	0804	0824	0828	N21	E81	.995	15221	7.4	24	-F	2					
CATA	01	0825	0825	0830	N20	E80	.992	15221	7.4	5	-N	2	C	0825	28		
	01	1505	1526	NO FLARE PATROL													
	01	1528	1602	NO FLARE PATROL													
	01	1613	1621	NO FLARE PATROL													
	01	1710	1726	NO FLARE PATROL													
	01	1729	1739	NO FLARE PATROL													
	01	1743	1845	NO FLARE PATROL													
	01	1910	1948	NO FLARE PATROL													
	01	2118	2125	NO FLARE PATROL													
	01	2134	2141	NO FLARE PATROL													
620 CULG	01	2157	2201	2225	N27	W46	.826	15223	29.5	28	-F		C	2201	40	.7	G Y5
621 CULG	01	2236	2248	2258	S14	E35	.576	15217	4.6	22	-F		C	2248	20	.2	Y5
622 CULG	02	0028	0037	0055	N28	W48	.846	15223	29.4	27	-F		C	0037	20	.3	Y5
623 CULG	02	0044	0047	0115	S14	E35	.577	15217	4.7	31	-F		C	0047	20	.2	Y5
624 CULG	02	0106	0107	0112	N22	E75	.981	15221	7.7	6	-N		C	0107	15		Y5
625 CULG	02	0128	0158	0228	N37	W65	.964	15203	28.2	60	?F		C	0158	160		Y5
	IMP.1 NO PALE1																
626 CULG	02	0158	0204	0220	N29	E39	.784	15220	5.0	22	-F		C	0204	30	.4	Y5
627 CULG	02	0222	0226	0231D	N28	W49	.853	15223	29.4	9D	-N		C	0226	30	.5	Y5
628 MANI	02	0307E	0307U	0311D	N12	E06	.333	15213	2.6	4D	-F	3	V		20	.2	Y5
629 MANI	02	0317E	0317U	0320	N21	E71	.965	15221	7.5	3D	?N	3	P		90	2.3	Y5
	IMP.1 NO PALE1																
630 HTPR	02	0901	0907	0913	N13	W42	.720	15218	30.2	12	-F		C	0907	10	.1	Y5
	02	1423	1600	NO FLARE PATROL													
	02	2158	2220	NO FLARE PATROL													
631 CULG	02	2219E	2219E	2235	N28	E55	.893	15221	7.1	16D	-N		P	2219	40	.8	Y5
632 VORO	02	2314	2316	2322D	N21	E60	.906	15221	7.5	8D	-B		C	2316	36	.7	E Y5
633 HTPR	03	0751	0753	0802	N23	E15	.543	15214	4.5	11	-F		C	0753	20	.2	Y5
634 HTPR	03	0800	0803	0818	N19	E90	1.001	15229	10.1	18	-F		C	0803	20		Y5
635 HTPR	03	0949	0952	0957	N18	E50	.820	15221	7.2	8	-F		C	0952	10	.2	Y5
636 HTPR	03	1040	1044	1054	N18	E54	.854	15221	7.5	14	-F		C	1044	20	.3	Y5
637 HTPR	03	1132	1133	1140	N23	E13	.531	15214	4.5	8	-F		C	1133	20	.2	E Y5
638 HTPR	03	1254	1254	1301	N23	E12	.525	15214	4.4	7	-F		C	1254	20	.2	E Y5
	03	1337	1351	NO FLARE PATROL													
	03	1411	1425	NO FLARE PATROL													
	03	1436	1705	NO FLARE PATROL													
	03	1709	1720	NO FLARE PATROL													
	03	1724	1758	NO FLARE PATROL													
	03	1822	1911	NO FLARE PATROL													
	03	1915	1926	NO FLARE PATROL													
	03	1944	2011	NO FLARE PATROL													
	03	2031	2045	NO FLARE PATROL													
	03	2216	2220	NO FLARE PATROL													
639 VORO	03	2304	2305	2312	N12	W58	.871	15226	30.6	8	-N		C	2305	36	.7	D Y5
640 HITK	04	0000	0006	0019	S20	W90	.999	15206	28.3	19	-B		C	0006	50		G Y5
641 HITK	04	0047	0059	0113	S20	W90	.999	15206	28.3	26	-F		C	0059	60		G Y5
642 MANI	04	0512	0515	0526	N19	E41	.740	15221	7.3	14	-F	3	P		40	.6	Y5

Hα SOLAR FLARES

APRIL 1978

OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IMPOR-TANCE	OBS		MEASUREMENTS			REMARKS	
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMR DAY	MIN.		CONF	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR AREA Sq. Deg.		
	APR																	
643 HTPR	04	0757	0801	0810	N18	E36	.683	15221	7.0	13	-F		C	0801	20	.2	E	Y5
644 HTPR	04	0911	0914	0925	N18	E42	.744	15221	7.5	14	-N		C	0914	60	.8		Y5
	04	1302	1320	NO FLARE PATROL														
	04	1414	1437	NO FLARE PATROL														
	04	1542	1731	NO FLARE PATROL														
	04	1749	1847	NO FLARE PATROL														
	04	2029	2105	NO FLARE PATROL														
GRP66645	04	2144	2153 2158	2220	N20	E32	.657	15221	7.3	36	-N						F	
CULG	04	2144	2153U	2220	N19	E32	.649	15221	7.3	36	-N		C	2153	40	.5	F	
CULG	04	2147	2158	2214D	N21	E32	.665	15221	7.3	27D	-N		C	2158	60	.8	F	
646 CULG	04	2219E	2221	2235	S32	E90	.998	15232	11.7	16D	-N		P	2221	30			Y5
647 CULG	04	2250	2254	2300	N14	E69	.948	15229	10.1	10	-F		C	2254	40			Y5
648 CULG	04	2323	2324	2327	N19	E32	.649	15221	7.4	4	-F		C	2324	20	.3		Y5
GRP66649	05	0138+8	0146+2	0155	N23	E29	.653	15221	7.2	17	-F							
CULG	05	0138	0146	0153	N28	E29	.698	15221	7.2	15	-F		C	0141	30	.4		
MITK	05	0146	0148	0156	N19	E30	.628	15221	7.3	10	-F		C	0148	70	.9		
650 VORO	05	0222	0224	0228	N20	E29	.627	15221	7.3	6	-B		C	0224	81	1.0		Y5
GRP66651	05	0252+8	0301 0347+3	0414	N20	E31	.646	15221	7.4	82	-N				60	.8	EK	
CULG	05	0252	0321U	0445	N20	E32	.656	15221	7.5	113	-F		C	0321	30	.4	K	
VORO	05	0300	0301	0303	N21	E30	.645	15221	7.4	3	-B		C	0301	63	.8	D	
MITK	05	0339	0350	0414	N20	E31	.646	15221	7.5	35	-F		C	0350	80	1.1	E	
VORO	05	0345	0347	0355	N21	E30	.645	15221	7.4	10	-B		C	0347	45	.6	E	
652 CULG	05	0508	0511	0520	N10	W36	.635	15213	2.5	12	-F		C	0511	40	.5		Y5
653 CULG	05	0525	0538	0550	N13	E60	.888	15229	9.7	25	-F		C	0538	90	1.8		Y5
GRP66654	05	0604	0615+3	0622	N20	E30	.637	15221	7.5	18	-N				80	1.0	JK	
CULG	05	0604	0617	0625	N20	E29	.627	15221	7.4	21	-N		C	0617	100	1.3	KJ	
ATHN	05	0613E	0615	0622	N28	E39	.776	15221	8.2	9D	-N	1		0615	49	.6		
MANI	05	0615	0618	0622	N20	E30	.637	15221	7.5	7	-F	3	P		100	1.3		
GRP66655	05	0617+2	0620+1	0631	N11	W37	.652	15213	2.5	14	-F				60	.8	J	
CULG	05	0617	0620	0627	N10	W36	.635	15213	2.6	10	-N		C	0620	40	.5	J	
MANI	05	0619	0621	0635	N12	W38	.669	15213	2.4	16	-F	3	P		80	1.1		
656 MANI	05	0628	0630	0640	N22	E29	.644	15221	7.4	12	-F	3	P		40	.5	F	Y5
657 HTPR	05	0652E		0745	N11	W40	.687	15213	2.3	53D	-F		C	0714	30	.4	E	Y5
GRP66658	05	0745+5	0750+4 0808	0831	N19	E24	.568	15221	7.1	46	-N				80	1.0		
CATA	05	0745E	0750	0830	N19	E24	.568	15221	7.1	45D	-B	2	P	0750	84	1.0		
HTPR	05	0749	0752	0828	N18	E21	.529	15221	6.9	39	-F		C	0752	30	.3		
MANI	05	0750	0754	0807D	N21	E27	.617	15221	7.4	17D	-F	2	P		100	1.3	FE	
HTPR	05	0750	0752	0805	N20	E28	.617	15221	7.4	15	-F		C	0752	10	.1		
HTPR	05	0805	0808	0831	N16	E20	.498	15221	6.8	26	-F		C	0808	20	.2		
GRP66659	05	0907+8	0914+1	0926	N18	E26	.579	15221	7.3	19	-B				140	1.7	E	
HTPR	05	0907	0914	0926	N18	E25	.568	15221	7.3	19	-N		C	0914	120	1.3	E	
CATA	05	0915	0915	0925D	N19	E27	.598	15221	7.4	10D	1B	2	P	0915	168	2.1		
660 HTPR	05	1103	1108	1115	N18	E25	.568	15221	7.3	12	-F		C	1108	20	.2		Y5
	05	1131	1140	NO FLARE PATROL														
	05	1144	1153	NO FLARE PATROL														
661 MCMA	05	1310	1313	1345	N17	E20	.509	15221	7.0	35	-N		C	1313	25	.3	D	Y5
662 MCMA	05	1353	1354	1408	N20	E22	.560	15221	7.2	15	-N		C	1354	40	.5	E	Y5
663 MCMA	05	1434	1438	1445	N18	E78	.987	15231	11.5	11	-N		C	1438			D	Y5
664 MCMA	05	1537	1540	1543	N21	E23	.580	15221	7.4	6	-F		C	1540	40	.5	E	Y5
	05	1609	1623	NO FLARE PATROL														

Hα SOLAR FLARES

APRIL 1978

OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IMPOR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP. DAY	MIN.		CONF.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR AREA Sq. Deg.	
	APR																
	05	1703	1712	NO FLARE PATROL													
	05	1723	1732	NO FLARE PATROL													
	05	1746	1756	NO FLARE PATROL													
	05	1757	1845	NO FLARE PATROL													
	05	1929	2123	NO FLARE PATROL													
665 CULG	05	2156	2157	2203	N18	E20	.520	15221	7.4	7	-F		C	2157	30	.3	Y5
GRP66666	05	2224	2226+2	2234	N20	E19	.534	15221	7.4	10	-F				50	.6	F
CULG	05	2224	2228	2232	N20	E20	.543	15221	7.4	8	-N		C	2228	60	.7	
MANI	05	2226E	2226U	2235D	N21	E19	.546	15221	7.4	9D	-F	2	V		40	.5	F
667 CULG	06	0054	0100	0112	N18	E22	.538	15221	7.7	18	-N		C	0100	40	.5	T Y5
668 CULG	06	0128	0129	0132	N18	E16	.484	15221	7.3	4	-F		C	0130	30	.3	T Y5
669 CULG	06	0358	0403	0413	N16	E18	.477	15221	7.5	15	-F		C	0403	20	.2	T Y5
670 CULG	06	0454	0455	0500	N17	E19	.498	15221	7.6	6	-F		C	0455	20	.2	T Y5
GRP66671	06	0510+1	0514+1	0524	N18	E16	.484	15221	7.4	14	-F				35	.4	
MANI	06	0513	0515	0523	N18	E17	.492	15221	7.5	13	-F	3	P		30	.3	
CULG	06	0511	0514	0525	N18	E16	.484	15221	7.4	14	-N		C	0514	40	.5	T
GRP66672	06	0535+1	0537+1	0544	N18	E16	.484	15221	7.4	9	-F				45	.5	
CULG	06	0535	0538	0545	N19	E16	.497	15221	7.4	10	-F		C	0538	35	.4	T
MANI	06	0536	0537	0542	N18	E17	.492	15221	7.5	6	-F	3	P		50	.6	
GRP66673	06	0540+1	0542+4	0600	N10	W50	.792	15213	2.5	20	-N				90	1.4	V
CULG	06	0540	0542	0603	N10	W50	.792	15213	2.5	23	-B		C	0542	80	1.3	V
MANI	06	0541	0546	0556	N11	W50	.795	15213	2.5	15	-F	3	P		110	1.8	
674 CULG	06	0555	0604U	0612	N19	E18	.513	15221	7.6	17	-N		C	0604	35	.4	T Y5
675 CULG	06	0630	0634	0648	S32	E80	.979	15232	12.3	18	1N		C	0634	80		Y5
676 CULG	06	0650	0652	0655D	N18	E17	.492	15221	7.6	5D	-F		P	0652	30	.3	T Y5
	06	0915	1045	NO FLARE PATROL													
	06	1051	1339	NO FLARE PATROL													
	06	1344	1359	NO FLARE PATROL													
	06	1411	1418	NO FLARE PATROL													
	06	1421	1428	NO FLARE PATROL													
	06	1637	1743	NO FLARE PATROL													
	06	1809	1845	NO FLARE PATROL													
	06	1929	2121	NO FLARE PATROL													
677 CULG	06	2121	2130	2136	N18	W44	.763	15214	3.6	15	-F		C	2130	20	.2	Y5
	06	2151	2201	NO FLARE PATROL													
678 CULG	06	2200E	2200E	2208	N16	E10	.412	15221	7.7	8D	-F		P	2200	20	.2	T Y5
	06	2208	2214	NO FLARE PATROL													
679 CULG	06	2240	2246	2315	N17	E08	.416	15221	7.5	35	-F		C	2246	20	.2	Y5
680 CULG	06	2241	2249	2325	S28	E30	.585	15227	9.2	44	-F		C	2249	30	.3	T Y5
GRP66681	06	2320+1	2323+1	2328	N23	E03	.491	15221	7.2	8	-N				110	1.2	DJ
MITK	06	2320	2323	2334	N23	E04	.493	15221	7.3	14	-F		C	2323	130	1.5	
CULG	06	2320	2324	2328	N22	E03	.476	15221	7.2	8	-N		C	2324	80	.9	T
VORO	06	2321	2323	2326	N24	E03	.506	15221	7.2	5	-B		C	2323	116	1.3	DJ
GRP66682	06	2346+4	2352+1 2359	0006	N18	E08	.431	15221	7.6	20	-N				140	1.5	E
MITK	06	2346	2352	0006	N18	E08	.431	15221	7.6	20	-N		C	2352	160	1.8	E
CULG	06	2349	2353	0010	N18	E08	.431	15221	7.6	21	-N		C	2353	60	.6	TF
VORO	06	2350	2352	0005	N20	E08	.460	15221	7.6	15	-B		C	2352	143	1.6	E
MITK	06	2356	2359	0004	N18	E09	.436	15221	7.7	8	-F		C	2359	80	.9	
683 CULG	07	0057	0102U	0120	N18	E09	.435	15221	7.7	23	-F		C	0102	30	.3	T Y5
GRP66684	07	0209+2	0214+0	0225	N18	E08	.430	15221	7.7	16	-N				50	.5	H
CULG	07	0209	0214	0225	N17	E08	.415	15221	7.7	16	-N		C	0214	60	.6	FT
VORO	07	0211	0214	0222D	N20	E08	.460	15221	7.7	11D	-B		C	0214	54	.6	EH

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IMPOR-TANCE	OBS.		MEASUREMENTS			REMARKS	
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMR DAY	MIN.		CONC	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR AREA Sq. Deg		
	APR																	
685 CULG	07	0247	0257	0325	N18	E08	.430	15221	7.7	38	-F		C	0257	50	.5	FT	Y5
GRP66686	07	0343	0346 0354	0400	N20	E07	.455	15221	7.7	17	-N							
CULG	07	0343	0346	0359	N23	E06	.497	15221	7.6	16	-F		C	0346	30	.4	T	
CULG	07	0350	0354	0400	N18	E08	.430	15221	7.8	10	-N		C	0354	60	.7	T	
687 CULG	07	0444	0446	0500	N20	E04	.446	15221	7.5	16	-F		C	0446	20	.2		Y5
688 CULG	07	0519	0521	0524	N18	E03	.413	15221	7.4	5	-F		C	0521	20	.2		Y5
GRP66689	07	0528+2	0530+0	0536	N22	00	.473	15221	7.2	8	-F				20	.2		
MANI	07	0528	0530	0535	N22	E01	.473	15221	7.3	7	-F	3	P		20	.2		
CULG	07	0530	0530	0536	N22	E00	.473	15221	7.2	6	-F		C	0530	20	.2		
GRP66690	07	0706+1	0711+0	0714	N17	E05	.402	15221	7.7	8	-F				60	.6		
HTPR	07	0706	0711	0713	N18	E06	.421	15221	7.7	7	-F		C	0711	60	.6		
MITK	07	0707	0711	0715	N17	E05	.402	15221	7.7	8	-F		C	0711	70	.8		
GRP66691	07	0827+0	0827	0836	N18	E02	.411	15221	7.5	9	-F							
HTPR	07	0827E		0834	N18	E03	.413	15221	7.6	7D	-F		C	0827	10	.1		
KANZ	07	0827	0827	0837	N18	E01	.410	15221	7.4	10	-N	1						
692 ZURI	07	1029	1029	1033	S27	E21	.482	15227	9.0	4	-F		C	1029	60	.7		Y5
GRP66693	07	1140+1	1141+4	1149	N19	00	.426	15221	7.5	9	-N				90	1.0	E	
MCMA	07	1140	1144	1148	N20	W01	.442	15221	7.4	8	-N		C	1144	75	.8	E	
CATA	07	1140	1145	1150	N18	W01	.410	15221	7.4	10	-B	2	C	1145	112	1.2		
HTPR	07	1140	1141	1150	N19	E02	.427	15221	7.6	10	-F		C	1141	40	.4	E	
ZURI	07	1141	1143	1147	N19	E00	.426	15221	7.5	6	-N		C	1143	110	1.3		
GRP66694	07	1153	1158 1208	1225	N17	W05	.402	15221	7.1	32	-F						EL	
HTPR	07	1153	1158	1225	N14	W08	.370	15221	6.9	32	-F		C	1158	10	.1		
MCMA	07	1158E		1220D	N17	W05	.402	15221	7.1	22D	-N		C	1208	100	1.0	EL	
HTPR	07	1205	1208	1215	N22	W01	.473	15221	7.4	10	-F		C	1208	20	.2		
695 MCMA	07	1305	1306	1315	N34	W22	.710	15234	5.9	10	-F		C	1306	25	.4	D	Y5
696 ZURI	07	1309	1311	1315	S27	E20	.472	15227	9.0	6	-F		C	1311	60	.7		Y5
GRP66697	07	1345+1	1350+1	1354	N21	W49	.822	15214	3.9	9	-F						DH	
ZURI	07	1345	1351	1355	N21	W48	.813	15214	4.0	10	-F		C	1351	100	1.8		
MCMA	07	1346	1350	1352	N22	W50	.834	15214	3.8	6	-F		C	1350	20	.4	DH	
GRP66698	07	1431+5	1437+1 1445+0	1456	N18	00	.410	15221	7.6	25	-N				60	.7	EHK	
ZURI	07	1431	1439	1439	N17	W01	.394	15221	7.5	8	-F		C	1439	70	.8		
HTPR	07	1433		1453D	N18	E01	.410	15221	7.7	20D	-N		C	1446	60	.6	E	
MCMA	07	1435E	1445	1500	N18	W02	.411	15221	7.5	25D	-N		C	1445	40	.4		
MCMA	07	1435E	1437	1500	N18	W02	.411	15221	7.5	25D	-N		C	1437	30	.3	EHK	
KANZ	07	1436	1438	1442	N18	E00	.410	15221	7.6	6	-F	1						
ZURI	07	1445	1445	1459	N17	W01	.394	15221	7.5	14	-N		C	1445	80	.9		
699 MCMA	07	1547	1554	1605	N18	W03	.413	15221	7.4	18	-N		C	1554	70	.8	E	Y5
700 MCMA	07	1618	1625	1630	N19	W06	.437	15221	7.2	12	-B		C	1625	40	.5	EL	Y5
701 MCMA	07	1700	1702	1715	N18	W02	.411	15221	7.6	15	-N		C	1702	30	.3	EL	Y5
702 MCMA	07	1729	1730	1740	N20	W04	.446	15221	7.4	11	-N		C	1730	30	.3	E	Y5
703 MCMA	07	1738	1740	1746	N20	W52	.843	15214	3.8	8	-N		C	1740	30	.5	E	Y5
704 MCMA	07	1840	1842	1847	N20	W04	.446	15221	7.5	7	-F		C	1842	30	.3	E	Y5
GRP66705	07	1917	1920 1932	1942	N20	W05	.449	15221	7.4	25	-B						EK	
MCMA	07	1917	1920	1942	N20	W05	.449	15221	7.4	25	-B		C	1920	100	1.1	EK	
MCMA	07	1917	1932	1942	N20	W05	.449	15221	7.4	25	-B		C					
	07	2005	2016	NO FLARE PATROL														
	07	2026	2040	NO FLARE PATROL														
	07	2046	2130	NO FLARE PATROL														

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IMPOR-TANCE	OBS.		MEASUREMENTS			REMARKS	
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP DAY	MIN.		CONC	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR AREA Sq. Deg.		
	APR																	
GRP66706	07	2130	2137	2150	N21	W06	.467	15221	7.4	20	-N				80	.9		
CULG	07	2130	2137	2150	N20	W06	.452	15221	7.4	20	-N		C	2137	85	.9	F	
VORO	07	2140E		2145D	N22	W07	.485	15221	7.4	5D	-B		C	2140	81	.9	D	
	07	2210	2223	NO FLARE PATROL														
GRP66707	07	2224+0	2225+2	2232	N16	W06	.390	15221	7.5	8	-N				80	.9	E	
VORO	07	2224	2225	2229	N18	W08	.430	15221	7.3	5	-B		C	2225	108	1.2	E	
CULG	07	2224	2227	2234	N15	W05	.371	15221	7.6	10	-F		C	2227	45	.5		
708 CULG	07	2345	2347	2357	N23	W08	.503	15221	7.4	12	-F		C	2347	20	.2		Y5
709 VORO	08	0007	0008	0013	N20	W53	.851	15214	4.0	3	-B		C	0008	72	1.3	D	Y5
710 CULG	08	0040	0044	0112	S32	E73	.953	15233	13.5	32	-F		C	0044	40			Y5
711 CULG	08	0044	0047	0057	N15	W07	.378	15221	7.5	13	-F		C	0047	40	.4		Y5
GRP66712	08	0053+5	0100+4	0119	S27	E16	.436	15227	9.2	26	-F							
MITK	08	0053	0100	0120	S27	E16	.436	15227	9.2	27	-F		C	0100	130	1.5		
CULG	08	0058	0104	0118	S28	E15	.440	15227	9.2	20	-F		C	0104	20	.2		
MANI	08	0103E	0103U	0115D	S27	E25	.525	15227	9.9	12D	-F	3	V		40	.4		
713 CULG	08	0059	0104	0125	S39	E90	.998	15233	14.8	26	-F	*	C	0104	20			Y5
GRP66714	08	0109>9	0156	0445	N19	W11	.460	15214	7.2	216	2B						FHJKUZ	
			0230+5															
CULG	08	0109	0230U	0655D	N16	W13	.432	15214	7.1	346D	2B	*	C	0230	860	9.5	UZF	
VORO	08	0116	0128	0135D	N20	W05	.448	15214	7.7	19D	2F	*	C	0128	493	5.6	FK	
MITK	08	0120	0235	0418	N20	W12	.480	15214	7.2	178	3B	*	C	0235	1160	13.6	FHJKUZ	
MANI	08	0150E	0156	0239D	N18	W10	.439	15214	7.3	49D	1B	*	P		350	4.0	FU	
MANI	08	0150E	0150U	0203	N19	W04	.430	15214	7.8	13D	-N	*	P		120	1.3		
TACH	08	0315E		0445	N19	W11	.460	15214	7.3	90D	2F	*	C	0319	884	10.2	EH	
715 VORO	08	0113	0114	0116	N20	W53	.851	15214	4.1	3	-B		C	0114	63	1.2	D	Y5
716 CULG	08	0400	0404	0410	N14	E22	.495	15229	9.8	10	-F		C	0404	20	.2		Y5
GRP66717	08	0422+1	0424+5	0452	N16	W08	.399	15221	7.6	30	-N				170	1.8	EHV	
CULG	08	0422	0424	0458	N15	W09	.390	15221	7.5	36	1N	*	C	0424	180	2.0	V	
MITK	08	0423	0429	0446	N17	W08	.414	15221	7.6	23	-N	*	C	0429	160	1.8	EH	
718 CULG	08	0530	0534	0555	S38	E85	.991	15233	14.6	25	-F		C	0534	40			Y5
719 CATA	08	0835E	0835	0855	N16	W11	.417	15221	7.5	20D	-B	2	P	0835	112	1.2		Y5
720 ZURI	08	0944	0958	1002	N23	W56	.883	15214	4.2	18	-F		C	0958	50	1.1		Y5
GRP66721	08	1020+5	1022+3	1034	N22	W56	.880	15214	4.2	14	-N				70	1.4		
ZURI	08	1020	1022	1032	N23	W56	.883	15214	4.2	12	-N		C	1022	90	2.0		
CATA	08	1025	1025	1035	N22	W57	.887	15214	4.2	10	-B	2	C	1025	56	1.2		
722 ZURI	08	1050	1054	1058D	N23	W14	.533	15221	7.4	8D	-F		P	1054	120	1.5		Y5
723 HCMA	08	1824	1825	1829	S28	E02	.374	15227	8.9	5	-F		C	1825	25	.3	DH	Y5
724 HCMA	08	1826	1827	1835	N22	W20	.563	15221	7.3	9	-N		C	1827	30	.4	E	Y5
725 HCMA	08	1856	1903	1912	N22	W63	.926	15214	4.1	16	-N		C	1903	40	1.2	E	Y5
726 HCMA	08	1906	1907	1911	N18	E85	.999	15235	15.2	5	-N		C	1907			D	Y5
	08	2013	2123	NO FLARE PATROL														
	08	2133	2217	NO FLARE PATROL														
	08	2251	2258	NO FLARE PATROL														
GRP66727	08	2300+1	2302+0	2310	N22	W66	.942	15214	4.0	10	-N				35		DJ	
CULG	08	2300	2302	2312	N22	W66	.942	15214	4.0	12	-F		C	2302	20			
VORO	08	2301	2302	2308	N22	W67	.947	15214	3.9	7	-B		C	2302	45		DJ	
728 VORO	08	2311	2312	2318	N19	E80	.992	15235	15.0	7	-B		C	2312	27		D	Y5
GRP66729	08	2315>9	2328+0	0001	N11	E15	.386	15229	10.1	46	-F				60	.6	ELS	
CULG	08	2315	2328	0006	N11	E15	.386	15229	10.1	51	-F		C	2328	60	.7	LS	
MITK	08	2325	2329	2356	N12	E16	.409	15229	10.2	31	-F		C	2328	60	.7	E	

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IMPOR-TANCE	OBS.		MEASUREMENTS			REMARKS	
	DATE APR	START	MAX. PHASE	END	APPROX LAT.	APPROX MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMR DAY	MIN.		CONC	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR AREA Sq. Deg		
GRP66730	08	2332+0	2333+0	2340	N21	W67	.946	15214	4.0	8	-N				50		D	
CULG	08	2332	2333	2339	N22	W66	.942	15214	4.0	7	-F		C	2333	40			
VORO	08	2332	2333	2340	N20	W68	.950	15214	3.9	8	-B		C	2333	72		D	
GRP66731	08	2341+1	2342+1	2348	N22	W22	.580	15221	7.3	7	-N				60	.7	D	
CULG	08	2341	2342	2348	N21	W22	.569	15221	7.3	7	-F		C	2342	60	.7		
VORO	08	2341	2342	2345	N23	W22	.591	15221	7.3	4	-B		C	2342	143	1.8	D	
MITK	08	2342	2343	2348	N22	W23	.588	15221	7.3	6	-F		C	2343	60	.8		
732 CULG	09	0003	0007D	0007D	N17	W18	.487	15221	7.7	4D	-F		P	0006	45	.5		Y5
733 VORO	09	0010	0011	0012D	N21	W67	.946	15214	4.0	2D	-B		C	0011	81		D	Y5
734 VORO	09	0011	0012	0015	N17	W19	.496	15221	7.6	4	-B		C	0012	72	.8	DJ	Y5
735 VORO	09	0041	0042	0047	N21	W70	.960	15214	3.8	6	-B		C	0042	81		D	Y5
GRP66736	09	0215E	0216+2	0222D	N21	W69	.956	15214	3.9	7	-N							
MANI	09	0215E	0216	0222D	N22	W70	.961	15214	3.8	7D	1N	3	P		100	2.4		
CULG	09	0217E	0218U	0218D	N21	W69	.956	15214	3.9	1D	-N		P	0218	30			
GRP66737	09	0316	0318+1	0330	N15	W19	.473	15221	7.7	14	1N						H	
MITK	09	0316	0318	0330	N16	W20	.495	15221	7.6	14	1N		C	0318	180	2.1	H	
MANI	09	0317E	0319	0319D	N15	W19	.473	15221	7.7	2D	1B	3	V		180	2.1		
GRP66738	09	0422+1	0425+1	0449	N23	W71	.966	15214	3.9	27	1N				150		DJL	
MITK	09	0422	0425	0437	N23	W72	.970	15214	3.8	15	1N		C	0425	130			
TACH	09	0423	0426	0501D	N23	W70	.962	15214	3.9	38D	1B		C	0426	177		DJL	
739 CATA	09	0710	0710	0715	N17	E71	.960	15235	14.6	5	1N	2	C	0710	84			Y5
GRP66740	09	0729+1	0745 0752+4	0816	N23	W70	.962	15214	4.1	47	-B							
KANZ	09	0729	0752	0816	N24	W70	.963	15214	4.1	47	-B	2						
CATA	09	0730	0745	0820	N22	W70	.961	15214	4.1	50	-B	2	C	0745	56			
MANI	09	0755E	0756	0800D	N24	W70	.963	15214	4.1	5D	1N	3	V		150	3.6		
KANZ	09	0806	0810	0816	N23	W72	.970	15214	3.9	10	-B	2						
HTPR	09	0810E		0816	N23	W70	.962	15214	4.1	6D	-N		C	0812	40			
741 KANZ	09	0814	0816	0820	N13	E74	.970	15235	14.9	6	-F	2						Y5
742 HTPR	09	0842	0849	0859	N13	E75	.974	15235	15.0	17	-F		C	0849	40			Y5
743 HTPR	09	0907	0913	0920	N13	E75	.974	15235	15.0	13	-F		C	0913	40		E	Y5
744 KANZ	09	1007	1010	1014	N16	E80	.991	15235	15.4	7	-F	1						Y5
745 KANZ	09	1202	1204	1211	N18	W25	.566	15221	7.6	9	1N	2					U	Y5
746 WEND	09	1225		1235	N17	W25	.556	15221	7.6	10	-N							Y5
GRP66747	09	1321+6	1327	1334	N22	W28	.633	15221	7.5	13	-F							
WEND	09	1321		1333	N21	W28	.623	15221	7.5	12	-N							
KANZ	09	1327	1327	1334	N24	W29	.660	15221	7.4	7	-F	3						
748 KANZ	09	1428	1428	1439	N14	E73	.967	15235	15.1	11	-N	2					D	Y5
	09	1802	1804	NO FLARE PATROL														
	09	1824	1831	NO FLARE PATROL														
	09	1934	1959	NO FLARE PATROL														
749 CULG	09	2150	2155	2214	N16	E78	.986	15235	15.8	24	-N		C	2155	40			Y5
	09	2215	2220	NO FLARE PATROL														
GRP66750	10	0244+3	0252+6	0352	N16	E16	.456	15231	11.3	68	-F				120	1.3		
CULG	10	0244	0258	0331D	N16	E15	.447	15231	11.2	47D	-N		C	0258	90	1.0		
MITK	10	0247	0252	0352	N17	E17	.477	15231	11.4	65	-F		C	0252	150	1.8		
751 CULG	10	0314	0317	0330	N16	E73	.968	15235	15.6	16	-F		C	0317	20			Y5
752 MITK	10	0449	0449	0509	N18	W34	.659	15221	7.7	20	-B		C	0449	100	1.4	E	Y5
753 CULG	10	0537	0542U	0605	N20	E85	.999	15235	16.6	28	-F		C	0542	40			Y5
754 CULG	10	0629	0639	0644	N14	W02	.344	15229	10.1	15	-N		P	0639	40	.4		Y5

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IMPOR-TANCE	OBS.		MEASUREMENTS			REMARKS	
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX HEL. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMR DAY	MIN.		CONC	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR AREA Sq. Deg.		
	APR																	
	10	1030	1105	NO FLARE PATROL														
755 CATA	10	1105E	1105	1110D	N20	E75	.979	15235	16.1	5D	1B	1	P	1105	84			Y5
	10	1211	1250	NO FLARE PATROL														
	10	1306	1324	NO FLARE PATROL														
756 MCMA	10	1335	1339	1344	N18	W38	.701	15221	7.7	9	-N		C	1339	20	.3	E	Y5
757 MCMA	10	1405	1407	1412	N15	W17	.453	15229	9.3	7	-N		C	1407	35	.4	E	Y5
	10	1415	1429	NO FLARE PATROL														
	10	1436	1441	NO FLARE PATROL														
	10	1518	1539	NO FLARE PATROL														
	10	1543	1637	NO FLARE PATROL														
758 MCMA	10	1706	1718	1735	N19	E80	.992	15235	16.7	29	-B		C	1718	25		D	Y5
759 MCMA	10	1717	1719	1726	N18	W42	.742	15221	7.6	9	-N		C	1719	20	.4	E	Y5
760 CULG	10	2135E	2140U	2155	N16	E56	.863	15235	15.1	20D	-F		P	2140	40	.8		Y5
761 MANI	10	2230E	2232	2236	S25	W24	.497	15227	9.1	6D	-F	3	V		40	.4	F	Y5
762 CULG	10	2242E	2244	2256	N17	E70	.956	15235	16.2	14D	-F		C	2244	20			Y5
763 CULG	10	2247	2303	0100	N12	W15	.397	15229	9.8	133	-N		C	2303	140	1.5	U	Y5
764 MANI	10	2304	2306	2316	S25	W24	.497	15227	9.2	12	-F	3	V		50	.6	F	Y5
765 CULG	10	2337	2339	2358	S31	W22	.536	15227	9.3	21	-N		C	2339	40	.5		Y5
766 CULG	10	2342	2356	0025	N18	W52	.835	15221	7.1	43	-N		C	2356	65	1.1	J	Y5
GRP66767	11	0052+1	0057+0	0109	N14	E50	.803	15235	14.8	17	-N				70	1.2	F	
CULG	11	0052	0057	0110	N13	E51	.810	15235	14.9	18	-N		C	0057	55	1.1		
MANI	11	0053	0057	0108	N15	E50	.807	15235	14.8	15	-N	3	P		80	1.3	F	
GRP66768	11	0226+4	0230 0304+4	0331	N19	W54	.855	15221	7.1	65	-N				90	1.7		
MANI	11	0226	0230	0235D	N20	W53	.850	15221	7.1	9D	-N	3	P		100	1.8		
CULG	11	0230	0308	0334	N19	W54	.855	15221	7.1	64	-N		C	0308	80	1.6		
MANI	11	0300	0304	0327	N20	W54	.858	15221	7.1	27	-N	3	P		100	1.8		
769 CULG	11	0230	0232	0258	S31	W22	.537	15227	9.5	28	-N		C	0232	60	.7		Y5
770 CULG	11	0253	0258	0315	N13	E51	.810	15235	14.9	22	-F		C	0258	50	.9		Y5
GRP66771	11	0407+3	0412+3	0438	N18	W55	.860	15221	7.0	31	-N							
CULG	11	0407	0412	0450	N18	W56	.868	15221	7.0	43	-N		C	0412	70	1.4		
MANI	11	0410	0415	0425	N19	W54	.855	15221	7.1	15	1N	3	P		200	3.7		
772 CULG	11	0502	0506	0530	N13	E49	.790	15235	14.9	28	-N		C	0506	50	.8		Y5
GRP66773	11	0518+4	0529+2	0635	N13	W22	.483	15229	9.6	77	-N				140	1.6	F	
CULG	11	0518	0531	0644D	N12	W22	.474	15229	9.6	86D	1N		C	0531	180	2.1		
MANI	11	0522	0529	0625	N15	W23	.514	15229	9.5	63	-F	3	P		100	1.2	F	
GRP66774	11	0534+4	0538+3	0554	N22	W50	.832	15221	7.5	20	-F				70	1.2	F	
CULG	11	0534	0538	0552	N21	W53	.853	15221	7.3	18	-N		C	0538	60	1.2		
MANI	11	0538	0541	0555	N23	W48	.820	15221	7.6	17	-F	3	P		80	1.4	F	
775 CULG	11	0633	0635	0644D	N19	E69	.953	15235	16.4	11D	-F		C	0635	30			Y5
	11	1014	1025	NO FLARE PATROL														
776 CATA	11	1025E	1025	1040	N13	E47	.770	15235	15.0	15D	-B	1	P	1025	67	1.0		Y5
777 CATA	11	1025E	1025	1040	N18	W90	1.001	15214	4.7	15D	1N	1	P	1025	56			Y5
778 CATA	11	1035	1035	1055	S30	E09	.431	15232	12.1	20	-B	2	C	1035	84	.9		Y5
GRP66779	11	1056E	1056	1155	N15	E50	.807	15235	15.2	59	-N				100	1.7	DI	
KIEV	11	1056E	1056	1155	N15	E50	.807	15235	15.2	59D	-N		C	1056	100	1.7	DI	
CATA	11	1100E	1100	1100D	N16	E50	.810	15235	15.2		-B	2	P	1100	112	1.9		
	11	1100	1145	NO FLARE PATROL														

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OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS
	DATE APR	START	MAX. PHASE	END	APPROX LAT.	APPROX MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMR DAY	MIN.		CONC	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR AREA Sq. Deg	
780 KIEV	11 IMP.3 NO	1342	1410 RAMY1	1505D	N22	W56	.879	15221	7.4	83D	?B		C	1410	900	16.2	EHI Y5
781 KIEV	11 IMP.1 NO	1437	1442 RAMY1	1447	N12	E44	.735	15235	14.9	10	?N		C	1442	150	2.2	DHI Y5
782 MCMA	11	1647E		1706D	N21	W56	.876	15221	7.5	19D	-N		P	1647	35	.7	BD Y5
783 MCMA	11	1655E		1655D	S27	W38	.667	15227	8.9		-N		P	1655	30	.4	D Y5
784 MCMA	11	1807E		1811D	S27	W38	.667	15227	8.9	4D	-F		P	1807	40	.5	E Y5
785 MCMA	11	2106E		2117	N17	E56	.865	15235	16.1	11D	-N		C	2106	25	.5	E Y5
GRP66786	11	2120	2121	2132	N18	E57	.875	15235	16.2	12	-B				50	1.0	EH
MCMA	11	2120	2121	2130	N17	E56	.865	15235	16.1	10	-B		C	2121	40	.8	EH
CULG	11	2124E	2124E	2133	N20	E58	.888	15235	16.2	9D	-N		C	2124	55	1.1	
GRP66787	11	2120+6	2127+1	2133	S28	W38	.672	15227	9.0	13	-F				40	.6	EH
MCMA	11	2120	2127	2132	S27	W39	.677	15227	9.0	12	-N		C	2127	30	.4	EH
CULG	11	2126	2128	2133	S29	W38	.677	15227	9.0	7	-F		C	2128	50	.7	
788 MCMA	11	2120	2127	2150D	N14	E37	.666	15227	14.7	30D	-N		C	2127	40	.5	EH Y5
789 CULG	11	2207	2208	2235	S29	W36	.657	15227	9.2	28	-F		C	2208	45	.6	Y5
790 CULG	11	2228	2240	2300	N13	E36	.649	15235	14.6	32	-F		C	2240	45	.6	Y5
791 CULG	11	2302	2310	0007	N12	E38	.667	15235	14.8	65	-F		C	2310	60	.8	F Y5
792 CULG	11	2305	2307	2340	S28	W38	.672	15227	9.1	35	-N		C	2307	80	1.1	Y5
793 CULG	11	2338	2344	2350	N18	E55	.860	15235	16.1	12	-F		C	2344	20	.4	Y5
794 CULG	12	0000	0009	0018	S25	W40	.679	15227	9.0	18	-N		C	0009	70	1.0	Y5
795 CULG	12	0101E	0106	0120	N12	E38	.666	15235	14.9	19D	-F		C	0106	40	.6	Y5
796 CULG	12	0117E	0122	0135	S28	W39	.683	15227	9.1	18D	-F		C	0122	30	.4	Y5
797 CULG	12	0200	0200	0210	S26	W40	.684	15227	9.1	10	-F		C	0200	20	.3	Y5
798 CULG	12	0223	0224	0237	N19	E53	.846	15235	16.1	14	1N		C	0224	130	2.5	Y5
799 CULG	12	0224	0236	0345	N17	E40	.715	15235	15.1	81	2F		C	0236	450	6.3	FI Y5
800 CULG	12	0225	0231	0250	S28	W40	.693	15227	9.1	25	-N		C	0231	100	1.4	Y5
GRP66801	12	0449+5	0453+3	0528	N14	E33	.620	15235	14.7	39	-N				90	1.1	K
CULG	12	0449	0453	0528	N12	E36	.643	15235	14.9	39	-N		C	0453	80	1.0	FK
MANI	12	0454	0456	0502D	N16	E30	.600	15235	14.5	8D	-B	3	V		100	1.3	E
GRP66802	12	0541+6	0546+2	0620	S27	W40	.688	15227	9.2	39	-F				80	1.1	
CULG	12	0541	0546	0620	S28	W40	.693	15227	9.2	39	-N		C	0546	80	1.1	
MANI	12	0547	0548	0550D	S27	W40	.688	15227	9.2	3D	-F	3	V		80	1.1	
GRP66803	12	0644E	0650+1 0710	0730D	N20	W65	.933	15221	7.4	46	2N						FUYZ
BUCA	12	0644E	0651	0724D	N20	W63	.921	15221	7.6	40D	2N		C	0651	322	8.5	F
MANI	12	0648E	0650	0655D	N22	W65	.936	15221	7.4	7D	1B	3	V		200	4.4	FU
CULG	12	0700E	0710U	0730D	N18	W69	.952	15221	7.1	30D	2N		P	0710	460		UYZ
804 MANI	12	0740	0741	0746D	N19	E50	.821	15235	16.1	6D	-F	3	V		100	1.7	Y5
805 ZURI	12	0857	0909	0911D	S45	E90	.997	15238	19.1	14D	-F		P	0909	60		Y5
GRP66806	12	0909+0	0916	0930	N16	E50	.810	15235	16.1	21	-N				90	1.5	E
ZURI	12	0909	0911	0911D	N16	E50	.810	15235	16.1	2D	-N		P	0911	120	2.1	
MONT	12	0909	0916	0933	N17	E49	.804	15235	16.1	24	-N		C	0916	60		E
ISTA	12	0915E		0926	N16	E51	.819	15235	16.2	11D	-N						E
GRP66807	12	0909	0929+3	0943	S45	E71	.954	15238	17.7	34	-N				60		
MONT	12	0909	0932	0950	S43	E76	.969	15238	18.1	41	-N		C	0932	50		
ATHN	12	0925E	0929	0935	S47	E67	.941	15238	17.4	10D	-N	1		0929	66	2.7	
	12	1045	1111	NO FLARE PATROL													

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OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS	
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP. DAY	MIN.		CONF.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR AREA Sq. Deg.		
	APR																	
808 HCMA	12	1310	1311	1324	N20	E58	.888	15235	16.9	14	-N		C	1311	50	1.1	E	Y5
809 HCMA	12	1646	1646	1700	N20	E57	.880	15235	17.0	14	-N		C	1646	30	.6	E	Y5
GRP66810	12	1736+1	1739+0	1800	N19	E45	.775	15235	16.1	24	-B							
HCMA	12	1736	1739	1800	N20	E45	.780	15235	16.1	24	-B		C	1739	50	.8	E	
PALE	12	1737	1739	1759	N18	E46	.780	15235	16.2	22	1B	3	C		168		FDE	
GRP66811	12	1800>9	1817	1824	N23	W72	.970	15221	7.3	24	-F				40			
HCMA	12	1800E		1825	N23	W73	.974	15221	7.3	250	-F		C	1815	30		D	
PALE	12	1814	1817	1822	N24	W71	.967	15221	7.4	8	-N	3	C		51		F	
812 HCMA	12	1903	1904	1920	N15	E26	.547	15235	14.7	17	-N		C	1904	15	.2	D	Y5
813 HCMA	12	1932	1934	1943	N13	W39	.683	15229	9.9	11	-N		C	1934	30	.4	E	Y5
814 HCMA	12	1934	1936	1940	N17	W75	.976	15221	7.2	6	-F		C	1936			E	Y5
GRP66815	12	1938+0	1941+0	1950	N17	E53	.840	15235	16.8	12	-B				30	.5		
HCMA	12	1938	1941	1950	N18	E54	.851	15235	16.9	12	-B		C	1941	30	.6	E	
RAMY	12	1938	1941	1949	N17	E53	.840	15235	16.8	11	-B	3	C		31		F	
GRP66816	12	1947+6	1955+5	2010	N16	E44	.751	15235	16.1	23	-N				30	.4		
HCMA	12	1947	1955	2010	N16	E44	.751	15235	16.1	23	-N	*	C	1955	25	.4	E	
RAMY	12	1953	2000	2009	N17	E44	.756	15235	16.1	16	-B	*	C		28		F	
817 HCMA	12	1949	2008	2010D	N15	E25	.536	15235	14.7	21D	-F		C	2008	20	.3	D	Y5
818 VORO	12	2203	2203	2206	N17	E25	.554	15235	14.8	3	-B		C	2203	63	.7	DJ	Y5
GRP66819	12	2219+1	2220+1	2229	N21	W78	.988	15221	7.1	10	-B							
CULG	12	2219	2221	2234	N22	W76	.983	15221	7.2	15	1N		C	2221	120			
VORO	12	2220	2220	2223	N21	W80	.992	15221	6.9	3	-B		C	2220	54			
GRP66820	12	2221+4	2226+0	2231	N17	E11	.427	15239	13.8	10	-N				45	.5	D	
CULG	12	2221	2226	2233	N17	E12	.434	15239	13.8	12	-N		C	2226	30	.3		
VORO	12	2225	2226	2228	N18	E11	.442	15239	13.8	3	-B		C	2226	63	.7	D	
GRP66821	12	2313>9	2352	0010	N19	W81	.993	15221	6.9	57	-N						D	
CULG	12	2313	2352	0010	N20	W78	.987	15221	7.1	57	-N		C	2352	30			
VORO	12	2347		2348D	N19	W85	.999	15221	6.6	1D	-B		C	2348	90		D	
GRP66822	12	2324+1	2326+0	2333	N15	E23	.513	15235	14.7	9	-N				45	.5	DH	
VORO	12	2324	2326	2332	N17	E23	.533	15235	14.7	8	-B		C	2326	63	.7	DH	
CULG	12	2325	2326	2334	N13	E23	.494	15235	14.7	9	-F		C	2326	30	.3		
GRP66823	13	0033+0	0035+0	0045	N15	E22	.502	15235	14.7	12	-N				60	.7	D	
VORO	13	0033	0035	0040	N17	E22	.522	15235	14.7	7	-B		C	0035	90	1.0	D	
CULG	13	0033	0035	0050	N13	E23	.494	15235	14.7	17	-N		C	0035	40	.5		
824 CULG	13	0048	0057	0120	N15	E41	.715	15235	16.1	32	-F		C	0057	20	.2		Y5
825 VORO	13	0109	0115	0129	N17	E22	.522	15235	14.7	20	-B		C	0115	72	.8	DJ	Y5
826 CULG	13	0130	0132	0146	S38	E19	.596	15233	14.5	16	-F		C	0132	20	.2		Y5
GRP66827	13	0450	0455+0	0512D	N20	W86	1.000	15221	6.8	22	1B				120			
MANI	13	0450	0455	0512	N20	W88	1.000	15221	6.6	22	1B	3	P		100	3.2		
CULG	13	0453E	0455	0612	N20	W85	.999	15221	6.8	79D	1B		P	0455	140			
828 CULG	13	0453E	0457U	0535	N12	E22	.472	15235	14.9	42D	1F		P	0457	200	2.3	FT	Y5
829 HTPR	13	0625	0628	0638	N15	E21	.491	15235	14.8	13	-F		C	0628	10	.1		Y5
GRP66830	13	0706+1	0709+0	0719	N15	E20	.481	15235	14.8	13	-F				50	.6		
MANI	13	0706	0709	0722	N15	E20	.481	15235	14.8	16	-F	3	P		60	.7		
HTPR	13	0707	0709	0716	N15	E21	.491	15235	14.9	9	-N		C	0709	40	.4		
831 HTPR	13	0747	0749	0800	N14	E24	.514	15235	15.1	13	-F		C	0749	40	.4	E	Y5
832 HTPR	13	0837	0845	0853	S38	E23	.621	15233	15.1	16	-F		C	0845	30	.4		Y5
GRP66833	13	0903+0	0909+8	0937	N17	W26	.564	15231	11.4	34	-N				110	1.3	E	
HTPR	13	0903	0909	0930	N18	W25	.563	15231	11.5	27	-N		C	0909	140	1.5	E	
ZURI	13	0903	0917	0945	N17	W26	.564	15231	11.4	42	-N		C	0917	80	1.0		
KHAR	13	0910E	0913	0937D	N17	W26	.564	15231	11.4	27D	-F		P	0913	110	1.4	E	

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OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS	
					APPROX		CENTRAL DISTANCE	McMATH PLAGE REGION	CMR DAY			CONC	TYPE	TIME	MEAS. AREA	CORR AREA		
	DATE APR	START	MAX. PHASE	END	LAT.	MER. DIST.				MIN.				UT	Mill. of Disk	Sq. Deg		
GRP66834	13	0912+1	0913+7	0929	N18	E46	.780	15235	16.8	17	-N				50	.8		
HTPR	13	0912	0914	0923	N18	E46	.780	15235	16.8	11	-N		C	0914	50	.7		
ZURI	13	0913	0917	0927	N18	E47	.789	15235	16.9	14	-N		C	0917	40	.7		
KHAR	13	0913E	0913	0925D	N18	E47	.789	15235	16.9	12D	-N		P	0913	55	.9	D	
LOCA	13	0915E	0920	0930	N21	E45	.784	15235	16.8	15D	-N		V	0920	61	1.0		
KHAR	13	0925E		0940D	N16	E40	.709	15235	16.4	15D	-F		P	0926	13		D	
GRP66835	13	0940+5	0945+5	1000	N15	E18	.460	15235	14.8	20	-N				70	.8		
LOCA	13	0940	0945	0953	N16	E16	.453	15235	14.6	18	-N		V	0945	51	.6		
HTPR	13	0945	0948	1000	N15	E18	.460	15235	14.8	15	-N		C	0948	90	1.8	E	
KHAR	13	0947E	0950	1003D	N15	E19	.470	15235	14.8	16D	-F		P	0950	55	.6	D	
836 KHAR	13	1135E		1145D	N24	W85	.999	15221	7.1	10D	-F		V	1136	20		D	Y5
837 HTPR	13	1208	1219	1310	N15	E17	.450	15235	14.8	62	-F		C	1219	20	.2		Y5
GRP66838	13	1255+2	1311+2	1330	N16	E34	.644	15235	16.1	35	-F				60	.8	E	
HTPR	13	1255	1311	1330	N17	E33	.640	15235	16.0	35	-F		C	1311	70	.9	E	
ZURI	13	1257	1313	1317D	N16	E35	.655	15235	16.2	20D	-F		P	1313	60	.8		
839 ZURI	13	1309	1313	1317D	N20	W90	1.001	15221	6.8	8D	-F		P	1313	100			Y5
GRP66840	13	1404+1	1407+0	1412	N17	E43	.746	15235	16.8	8	-N				40	.6		
HTPR	13	1404	1407	1413	N18	E43	.750	15235	16.8	9	-N		C	1407	30	.4		
ZURI	13	1405	1407	1411	N17	E44	.756	15235	16.9	6	-B		C	1407	50	.8		
841 ZURI	13 IMP-1 NO	1439	1519	1535 HTPR2 RAMY1	N24	W90	1.001	15221	6.9	56	?N		C	1519	160			Y5
842 HTPR	13	1504	1505	1508	S27	W59	.865	15227	9.2	4	-F		C	1505	30	.5	E	Y5
843 RAMY	13	1636	1638	1649D	N17	W90	1.000	15221	6.9	13D	-B	3	C					Y5
844 HTPR	13	1651	1658	1730	N17	E31	.618	15235	16.0	39	-N		C	1658	130	1.6	E	Y5
	13	1739	1907	NO FLARE PATROL														
845 CULG	13	2137	2143	2146	N12	E13	.374	15235	14.9	9	-F		C	2143	35	.4	F	Y5
846 CULG	13	2151	2156	2215	N12	E14	.384	15235	15.0	24	-N		P	2156	130	1.4	F	Y5
847 CULG	13	2159	2201	2205	S28	W64	.902	15227	9.1	6	-N		P	2201	20	.5		Y5
GRP66848	13	2220	2223+1	2235	S28	W28	.568	15232	11.8	15	-N				60	.7	D	
CULG	13	2220	2224	2237	S28	W28	.568	15232	11.8	17	-N		C	2224	60	.7		
MANI	13	2223E	2223U	2235D	S28	W25	.537	15232	12.1	12D	-F	2	V		30	.3		
MITK	13	2224E		2231	S28	W28	.568	15232	11.8	7D	-N		P	2224	80	1.0	D	
849 CULG	13	2245	2250	2320	N23	W90	1.001	15221	7.2	35	-N		C	2250	30			Y5
850 CULG	13	2250	2254	2305	S28	W28	.568	15232	11.9	15	-F		C	2254	20	.2		Y5
GRP66851	14	0020+0	0024+6	0110	N18	E28	.593	15235	16.1	50	1N				180	2.2	FU	
MITK	14	0020	0025	0112	N19	E28	.602	15235	16.1	52	1N		C	0025	240	3.1	F	
CULG	14	0020	0030	0107	N18	E29	.604	15235	16.2	47	1N		C	0030	160	2.1	UF	
MANI	14	0020E	0024	0045D	N17	E28	.585	15235	16.1	25D	-N	3	P		150	1.9	FU	
852 CULG	14	0220	0226	0241	S41	E10	.594	15233	14.8	21	-F		C	0226	60	.8		Y5
853 CULG	14	0318	0335	0402	N11	E10	.333	15235	14.9	44	-N		C	0335	110	1.2	FVJ	Y5
GRP66854	14	0436+0	0438+1	0444	S28	W30	.590	15232	11.9	8	-N				45	.6	D	
CULG	14	0436	0439	0444	S28	W30	.590	15232	11.9	8	-N		C	0439	40	.5		
MITK	14	0436	0438	0444	S29	W31	.608	15232	11.9	8	-N		C	0438	50	.6	D	
855 CULG	14	0516	0522	0530	N15	W61	.898	15229	9.6	14	-F		C	0522	40			Y5
GRP66856	14	0745	0755	0826	N21	W90	1.001	15221	7.6	41	1N							
CATA	14	0745	0755	0810D	N21	W90	1.001	15221	7.6	25D	1N	1	P	0755	140			
ZURI	14	0802E	0802	0826	N22	W90	1.001	15221	7.6	24D	1N		P	0802	70			
GRP66857	14	0838+8	0846+1	0853	N14	E06	.352	15235	14.8	15	-F				80	.9		
ZURI	14	0838	0846	0852	N14	E06	.352	15235	14.8	14	-N		C	0846	90	1.0		
MANI	14	0846	0847	0853	N14	E06	.352	15235	14.8	7	-F	3	V		80	.8		
858 ZURI	14	1016	1020	1032	N22	W90	1.001	15221	7.7	16	-B		C	1020	80			Y5

Hα SOLAR FLARES

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IMPOR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX LONG. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP. DAY	MIN.		CONF.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR AREA Sq. Deg	
	APR																
GRP66859	14	1059+5	1102 1114	1117	N15	E05	.363	15235	14.8	18	-N				70	.7	
TEHR	14	1059	1102	1112	N15	E07	.372	15235	15.0	13	-N	2	C		95		
ZURI	14	1104	1114	1120	N14	E05	.347	15235	14.8	16	-N		P	1114	90	1.0	
HTPR	14	1114E		1117	N16	E04	.376	15235	14.8	3D	-F		C	1114	50	.5	
GRP66860	14	1229+1	1232+1 1242+6	1254	N14	E03	.341	15235	14.7	25	-N				100	1.1	U
RAMY	14	1229	1232	1306D	N14	E01	.338	15235	14.6	37D	-B	3	C		98		U F
MCMA	14	1229	1232	1250	N15	E03	.357	15235	14.7	21	-F		C	1232	60	.7	E
RAMY	14	1229	1248	1306D	N14	E01	.338	15235	14.6	37D	-N	3	C		59		U F
ZURI	14	1230	1242	1258D	N14	E04	.344	15235	14.8	28D	-F		P	1242	90	1.0	
TEHR	14	1232E	1233	1240	N14	E06	.352	15235	15.0	8D	-N	2	C		127		
861 HTPR	14	1314		1329D	N20	E16	.502	15235	15.8	15D	-F		C	1319	20	.2	Y5
GRP66862	14	1634+0	1635+2	1647	N14	E02	.339	15235	14.8	13	-F				40	.4	E
MCMA	14	1634	1637	1650D	N15	E02	.355	15235	14.8	16D	-F		C	1637	50	.6	E
RAMY	14	1634	1635	1643	N14	E02	.339	15235	14.8	9	-N	3	C		26		
863 MCMA	14	1722	1729	1735	N12	E90	1.000	15244	21.5	13	-F		C	1729			Y5
GRP66864	14	1803E	1808	1832	S25	E33	.602	15237	17.2	29	-F						
MCMA	14	1803E		1835D	S25	E34	.614	15237	17.3	32D	-N		C	1815	60	.7	E
RAMY	14	1806E	1808	1829	S25	E32	.591	15237	17.2	23D	-F	3	C		51		F
	14	2106	2129	NO FLARE PATROL													
865 CULG	14	2201	2212U	2218D	N13	W04	.328	15235	14.6	17D	-F		P	2212	30	.3	F Y5
866 CULG	14	2312	2316	2327	N26	W90	1.001	15221	8.2	15	-N		C	2316	40		Y5
867 CULG	15 IMP.1 NO 1 MITK1	0050	0056	0125	N17	E86	.999	15244	21.5	35	?F		C	0056	60		Y5
868 CULG	15	0208	0211	0225	N21	E10	.475	15235	15.8	17	-N		C	0211	60	.6	Y5
869 MITK	15	0246	0249	0254	N22	E23	.583	15235	16.8	8	-N		C	0249	50	.6	Y5
870 CULG	15	0355	0430	0440	N20	W18	.517	15239	13.8	45	-F		C	0430	20	.2	Y5
871 CULG	15	0447	0452	0509	S27	W80	.980	15227	9.2	22	-N		C	0452	20		Y5
872 CULG	15	0500	0510	0540	N20	W18	.517	15239	13.9	40	-F		C	0510	30	.3	Y5
GRP66873	15	0511>9	0517 0548	0602	N12	W07	.325	15235	14.7	51	-F						K
CULG	15	0511	0517	0605	N12	W08	.331	15235	14.6	54	-F		C	0517	50	.5	FK
MITK	15	0545	0548	0556	N13	W07	.340	15235	14.7	13	-N		C	0548	80	.9	E
874 CULG	15	0610	0618	0700D	N20	W18	.517	15239	13.9	50D	-F		C	0618	20	.2	Y5
GRP66875	15	0630+5	0635+2	0703	N14	W08	.361	15235	14.7	33	-N				100	1.1	E
CULG	15	0630	0635	0700D	N12	W08	.331	15235	14.7	30D	-B		C	0635	100	1.1	
BUCA	15	0631E		0710	N14	W08	.361	15235	14.7	39D	-N		C	0638	150	1.7	E
ATHN	15	0632E	0636	0708	N14	W08	.361	15235	14.7	36D	-N	1		0636	80	.9	
MITK	15	0632	0636	0659	N14	W08	.361	15235	14.7	27	-N		C	0636	80	.9	E
MANI	15	0635	0637	0700	N14	W08	.361	15235	14.7	25	-B	3	P		90	1.0	E
GRP66876	15	0758+9	0800 0808	0825	S43	E36	.755	15238	18.0	27	-F						
TEHR	15	0758E	0800	0825	S43	E35	.749	15238	18.0	27D	-N	2	C		64		
HTPR	15	0807	0808	0825	S43	E38	.768	15238	18.2	18	-F		C	0808	50	.8	
GRP66877	15	0811+4	0814+5	0826	N14	W07	.355	15235	14.8	15	-B				170	1.8	FU
HTPR	15	0811	0814	0824	N15	W08	.376	15235	14.7	13	-B		C	0814	200	2.8	
TEHR	15	0814	0819	0830D	N14	W05	.346	15235	15.0	16D	-B	2	V		190		U F
TEHR	15	0814	0819	0834	N14	W05	.346	15235	15.0	20	-B	2	C		190		U F
CATA	15	0815	0815	0825	N14	W07	.355	15235	14.8	10	-B	2	C	0815	168	1.8	
MANI	15	0815	0816	0820	N14	W10	.375	15235	14.6	5	-B	3	V		100	1.1	
878 HTPR	15	0857	0859	0902	N15	W08	.376	15235	14.8	5	-F		C	0859	30	.3	Y5
879 HTPR	15	0952	0952	0958	N15	W10	.389	15235	14.7	6	-F		C	0952	10	.1	Y5
880 RAMY	15	1053E	1106	1117	N18	E05	.409	15235	15.8	19D	-N	3	C		59		F Y5

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IMPOR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX LONG. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMR DAY	MIN.		CONF	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR AREA Sq. Deg.	
	APR																
881 RAMY	15	1120	1121	1145	N16	E09	.397	15235	16.1	25	-B	3	C		28		F Y5
GRP66882	15	1146+1	1148+4	1202	N14	W10	.375	15235	14.7	16	-N						F
RAMY	15	1146	1148	1202	N14	W10	.375	15235	14.7	16	-B	3	C		98		F
RAMY	15	1146	1152	1202	N14	W10	.375	15235	14.7	16	-N	3	C		56		F
HTPR	15	1147		1151D	N15	W11	.396	15235	14.7	4D	-F		C	1149	20	.2	
GRP66883	15	1222+1	1225+7	1302	N18	E09	.426	15235	16.2	40	1B				250	2.7	FHU
MCMA	15	1222	1229	1320	N18	E09	.426	15235	16.2	58	1N		C	1229	175	2.0	EH
HTPR	15	1223		1305D	N17	E10	.418	15235	16.3	42D	-N		C	1228	200	2.2	E
RAMY	15	1223	1225	1258	N18	E09	.426	15235	16.2	35	1B	3	C		278		U F
RAMY	15	1223	1225	1233D	N18	E09	.426	15235	16.2	10D	1B	3	V		278		U F
TEHR	15	1229E	1232	1246	N17	E07	.401	15235	16.0	17D	1B	2	C		318		U F
884 RAMY	15	1449	1451	1500	N14	W12	.390	15235	14.7	11	-B	3	C		54		F Y5
	15	1601	1607	NO FLARE PATROL													
885 RAMY	15	1617	1620	1628	N13	W12	.377	15235	14.8	11	-B	3	C		75		F Y5
886 RAMY	15	1715	1719	1730D	N16	W28	.576	15239	13.6	15D	-B	3	C		84		Y5
887 RAMY	15	1725	1726	1730D	N17	E70	.955	15244	21.0	5D	-F	3	C				Y5
888 MCMA	15	1824E		1832D	N17	E70	.955	15244	21.0	8D	-F		C	1832	30	.9	D Y5
	15	2006	2134	NO FLARE PATROL													
	15	2237	2246	NO FLARE PATROL													
889 CULG	15	2307	2311	2320	N21	E00	.448	15235	16.0	13	-F		C	2311	40	.5	Y5
890 CULG	15	2316	2325	0000	S12	E78	.975		21.8	44	-F		C	2325	20		Y5
891 CULG	15	2341E	2341E	0005	N13	W18	.436	15235	14.6	24D	-F		C	2341	60	.7	F Y5
892 CULG	16	0101	0102	0115	N15	W15	.428	15235	14.9	14	-F		C	0102	20	.2	Y5
893 CULG	16	0213	0215	0219	S46	E29	.738	15238	18.3	6	-F		C	0215	30	.4	Y5
894 CULG	16	0336	0338	0345	N13	W18	.435	15235	14.8	9	-N		C	0338	60	.7	Y5
GRP66895	16	0350+2	0354+2	0414	N13	W18	.435	15235	14.8	24	-N				45	.5	
CULG	16	0350	0356	0425	N13	W18	.435	15235	14.8	35	-N		C	0356	60	.7	
MANI	16	0352	0354	0402	N14	W19	.456	15235	14.7	10	-N	3	P		30	.3	
896 CULG	16	0442	0444	0453	N13	W26	.527	15235	14.2	11	-F		C	0444	20	.2	Y5
897 CULG	16	0524	0526	0537	N19	W28	.601	15239	14.1	13	-F		C	0526	20	.3	Y5
898 CULG	16	0607	0607	0614	N11	W19	.425	15235	14.8	7	-F		C	0607	20	.2	Y5
899 MITK	16	0645	0646	0652	N20	E67	.943	15244	21.3	7	-N		C	0646	50		Y5
GRP66900	16	0919+0	0920+1	0931	N14	W22	.489	15235	14.7	12	-B				110	1.3	
ATHN	16	0919	0920	0931	N14	W25	.524	15235	14.5	12	-B	1		0920	98	1.1	
MANI	16	0919	0921	0923D	N14	W20	.467	15235	14.9	4D	-B	3	P		120	1.4	
901 MCMA	16	1153E		1208D	N14	W25	.524	15235	14.6	15D	-N		C	1155	50	.6	E Y5
902 RAMY	16	1451	1452	1503	N18	W62	.910	15231	12.0	12	-F	3	C		20		Y5
	16	2102	2142	NO FLARE PATROL													
903 CULG	16	2317	2319	2326	S19	W29	.519	15240	14.8	9	-F		C	2319	45	.5	Y5
904 CULG	17	0137	0141	0200	S27	W72	.948	15232	11.7	23	-F		C	0141	30		Y5
905 CULG	17	0226	0236	0310	N16	E57	.869	15244	21.4	44	-F		C	0236	50	1.0	Y5
906 MANI	17	0303	0304	0308	N12	W35	.629	15235	14.5	5	-F	3	P		20	.2	Y5
907 MANI	17	0609	0610	0624	N14	W37	.663	15235	14.5	15	-F	3	P		30	.4	Y5
908 CULG	17	0702	0706	0712D	S20	W32	.564	15240	14.9	10D	-F		P	0706	20	.2	Y5
909 CULG	17	0709	0712D	0712D	N12	W36	.641	15235	14.6	3D	-N		P	0712	40	.5	Y5

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IMPOR-TANCE	OBS.		MEASUREMENTS			REMARKS	
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP. DAY	MIN		COND	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR AREA Sq. Deg.		
	APR																	
910 CATA	17	0900	0900	09000	N16	E49	.799	15244	21.1		-N	2	P	0900	112	1.9		Y5
911 ZURI	17	1023	1029	10330	N14	W39	.686	15235	14.5	100	-F		P	1029	70	1.0		Y5
912 KHAR	17	1048E		10530	N15	W36	.658	15235	14.8	50	-F		P					Y5
	17	1101	1154	NO FLARE PATROL														
913 KHAR	17	1102E	1105	11250	N15	W39	.691	15235	14.5	230	-F		P				D	Y5
914 MCMA	17	1425E		1430	N17	E46	.774	15244	21.1	50	-F		C	1425	30	.5	DH	Y5
915 MCMA	17	1627	1631	1637	S44	E06	.628	15238	18.1	10	-F		C	1631	25	.3	DH	Y5
916 MCMA	17	1905		20300	S45	E12	.655	15238	18.7	850	-F		C	1945	45	.6	E	Y5
917 MCMA	17	2051	2054	2057	N12	W41	.699	15235	14.8	6	-F		C	2054	20	.3	D	Y5
918 CULG	17	2311	2315	2325	S29	W85	.993	15232	11.6	14	-F		C	2315	20			Y5
GRP66919	18	0104+5	0114+2	0148	N14	W45	.751	15235	14.7	44	1B				260	3.9	FZ	
CULG	18	0104	0116	0200	N14	W45	.751	15235	14.7	56	1B		C	0116	230	3.5	FZ	
MANI	18	0109	0114	0136	N14	W46	.761	15235	14.6	27	1B	3	P		300	4.7	FE	
920 MANI	18	0505	0509	0531	S29	E45	.750	15246	21.6	26	-F	3	P		30	.4		Y5
GRP66921	18	0758	0800+0	0804	N16	E59	.884	15248	22.8	6	-N				30	.6		
HTPR	18	0758	0800	0803	N16	E59	.884	15248	22.8	5	-F		C	0800	20	.4		
CATA	18	0800E	0800	0805	N17	E60	.894	15248	22.8	50	-B	2	P	0800	39	.9		
922 HTPR	18	0808	0812	0830	S32	E48	.789	15246	21.9	22	-F		C	0812	20	.3		Y5
923 ZURI	18	1243	1251	1301	S30	E39	.697	15246	21.5	18	-F		C	1251	50	.7		Y5
924 ZURI	18	1247	1251	1301	N20	E58	.886	15248	22.9	14	-F		C	1251	40	.9		Y5
925 RAMY	18	1638E	1640U	16550	S30	E39	.697	15246	21.6	170	-B	3	C		42		F	Y5
	18	1820	1845	NO FLARE PATROL														
	18	1930	2030	NO FLARE PATROL														
	18	2110	2120	NO FLARE PATROL														
926 CULG	19	0047	0055	0110	N15	W39	.690	15235	16.1	23	-F		C	0055	15	.2		Y5
927 CULG	19	0248	0258	0313	S32	E34	.663	15246	21.7	25	-N		C	0258	50	.7	F	Y5
GRP66928	19	0432+2	0437+4	0505	N16	W41	.717	15235	16.1	33	-N				90	1.3		
CULG	19	0432	0437	0508	N16	W40	.706	15235	16.2	36	-N		C	0437	110	1.5	F	
MITK	19	0434	0441	0502	N17	W42	.733	15235	16.0	28	-N		C	0441	70	1.0	E	
GRP66929	19	0649+5	0705 0713	0730	N21	E48	.808	15248	22.9	41	-N				60	1.0		
HTPR	19	0649	0713	0733	N21	E48	.808	15248	22.9	44	-N		C	0713	40	.7		
BUCA	19	0654		0800	N21	E45	.781	15248	22.7	66	-N		C	0708	128	2.1	E	
MITK	19	0702E	0705	0723	N21	E48	.808	15248	22.9	210	-N		C	0705	60	1.0	D	
MANI	19	0715E	0718U	0726	N21	E50	.825	15248	23.1	80	-N	3	P		40	.7		
930 MITK	19	0741	0745	0748	N21	E48	.808	15248	22.9	7	-N		C	0745	60	1.0	E	Y5
GRP66931	19	0758	0759	0805	S30	E31	.619	15246	21.7	7	-F						E	
HTPR	19	0758	0759	0804	S30	E31	.619	15246	21.7	6	-F		C	0759	30	.4	E	
KANZ	19	0802E		0805	S30	E31	.619	15246	21.7	30	-F	1						
932 KANZ	19	0802E		08450	N27	E30	.687	15244	21.6	430	-F	1					F	Y5
933 HTPR	19	0852	0853	0854	S30	E27	.580	15246	21.4	2	-F		C	0853	20	.2		Y5
	19	0921	0931	NO FLARE PATROL														
	19	0943	1000	NO FLARE PATROL														
	19	1007	1012	NO FLARE PATROL														
	19	1028	1059	NO FLARE PATROL														
934 RAMY	19	1106	1110	1120	N20	E44	.767	15248	22.8	14	-N	3	C		38			Y5
935 KHAR	19	1107E	1107	11130	S30	E30	.609	15246	21.7	60	-F		P				D	Y5
936 KHAR	19	1123E		11300	N23	E44	.782	15248	22.8	70	-F		P	1126	12		DH	Y5

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IMPOR-TANCE	OBS.		MEASUREMENTS			REMARKS	
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMR DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR AREA Sq. Deg.		
	APR																	
GRP66937	19	1201>9	1226+2	1240	N21	E44	.772	15248	22.8	39	-N				100	1.5	E	
RAMY	19	1201	1223	1247	N21	E43	.763	15248	22.7	46	-B	3	C		126			
HTPR	19	1215	1226	1233	N21	E45	.781	15248	22.9	18	-N		C	1226	70	1.1	E	
938 RAMY	19	1352	1404	1410	N16	E44	.749	15248	22.9	18	-N	3	C		41			Y5
939 RAMY	19	1411	1411	1417	N16	E44	.749	15248	22.9	6	-B	3	C		24			Y5
GRP66940	19	1453+1	1458+2	1514	N17	W46	.773	15235	16.2	21	-N						E	
RAMY	19	1453	1500	1515	N18	W48	.796	15235	16.0	22	-B	3	C		95			
HTPR	19	1454	1458	1512	N17	W45	.763	15235	16.2	18	-F		C	1458	20	.3	E	
941 HTPR	19	1536		1543D	N22	E46	.795	15248	23.1	7D	-F		C	1541	10	.2		Y5
942 RAMY	19	1554	1600	1608	N16	E43	.738	15248	22.9	14	-B	3	C		36		F	Y5
943 RAMY	19	1557	1559	1621	N29	E16	.610	15243	20.9	24	-B	3	C		41		F	Y5
944 RAMY	19	1633	1637	1656	S31	E25	.571	15246	21.6	23	-B	3	C		182		F	Y5
945 RAMY	19	1633	1640	1642	N16	E42	.728	15248	22.8	9	-N	3	C		26		F	Y5
946 RAMY	19	1739	1743	1758	N23	E27	.625	15244	21.8	19	-N	3	C		52		FDE	Y5
GRP66947	19	1740	1743	1810	N23	E35	.699	15248	22.4	30	-B						F	
RAMY	19	1740	1743	1810	N22	E35	.692	15248	22.4	30	-B	3	C		51		F	
MCMA	19	1748E		1804D	N24	E35	.707	15248	22.4	16D	-N		C	1754	100	1.4		
	19	2125	2136	NO FLARE PATROL														
GRP66948	19	2211+2	2213+1	2217	S31	E22	.544	15246	21.6	6	-F				50	.6	D	
CULG	19	2211	2213	2217	S32	E22	.555	15246	21.6	6	-F		C	2213	40	.5		
VORO	19	2213	2214	2216	S30	E22	.534	15246	21.6	3	-N		C	2214	72	.8	D	
949 CULG	19	2311	2315	2321	S32	E26	.589	15246	21.9	10	-F		C	2315	30	.4		Y5
950 CULG	20	0110	0111	0128	S33	E22	.567	15246	21.7	18	-N		C	0111	60	.7	F	Y5
951 CULG	20	0202	0205	0207	N21	E31	.645	15248	22.4	5	-F		C	0205	20	.3		Y5
952 CULG	20	0450	0452	0520	N14	W68	.940	15235	15.1	30	?F		C	0452	100			Y5
	IMP, 1 NO ; MITK1																	
GRP66953	20	0457+2	0501+0	0509	N23	E40	.745	15248	23.2	12	-F				50	.7	D	
CULG	20	0457	0501	0513	N19	E38	.702	15248	23.1	16	-F		C	0501	50	.7		
MITK	20	0459	0501	0505	N26	E42	.792	15248	23.4	6	-N		C	0501	50	.7	D	
954 CULG	20	0515	0519	0603	N30	E08	.588	15243	20.8	48	-F		C	0519	80	1.0		Y5
GRP66955	20	2217+2	2220+0	2223	N15	W82	.994	15235	14.8	6	-F				50		DH	
CULG	20	2217	2220	2221D	N15	W80	.990	15235	14.9	4D	-F		P	2220	40			
VORO	20	2219	2220	2223	N16	W85	.998	15235	14.6	4	-F		C	2220	63		DH	
956 CULG	20	2220	2221D	2221D	N20	E22	.548	15248	22.6	1D	-F		P	2221	20	.2		Y5
957 VORO	20	2229	2231	2239	N20	W60	.900	15235	16.4	10	-F		C	2231	45	1.0	E	Y5
958 VORO	20	2255	2255	2257	N22	E22	.569	15248	22.6	2	-N		C	2255	54	.6	D	Y5
	21	0024	0225	NO FLARE PATROL														
	21	0250	0310	NO FLARE PATROL														
	21	0500	0515	NO FLARE PATROL														
959 ABST	21	0540	0545	0602	N17	E24	.536	15248	23.0	22	-F		P	0545	79	.9	D	Y5
960 BUCA	21	0805E		0825D	N24	W55	.874	15254	17.2	20D	-N		P	0815	32	.7	D	Y5
961 KHAR	21	0850E	0850	0930D	N20	W59	.892	15254	16.9	40D	-F		P				D	Y5
962 KHAR	21	0902E		1003D	N12	W90	1.000	15235	14.6	61D	?F		P	0902	18		H	Y5
	IMP, 1 NO ; HTPR2																	
963 HTPR	21	1545	1547	1600	S29	E01	.405	15246	21.7	15	-F		C	1547	20	.2	E	Y5
964 MCMA	21	1900	1905	1920	N18	W63	.915	15254	17.1	20	-N		C	1905	40	.9	E	Y5
965 MCMA	21	2021		2042	N23	E17	.540	15248	23.1	21	-F		C	2030	25	.3	D	Y5

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IMPOR-TANCE	OBS.		MEASUREMENTS			REMARKS
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMR DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR AREA Sq. Deg.	
	APR																
GRP66966	21	2100	2110	2127	N20	W64	.925	15254	17.1	27	-N						DH
MCMA	21	2100	2110	2125	N21	W62	.915	15254	17.2	25	-N		C	2110	20	.5	H
VORO	21	2120E		2128	N20	W67	.942	15254	16.9	8D	-F		C	2128	81		BD
967 VORO	21	2226	2227	2232	N18	W85	.998	15235	15.6	6	-N		C	2227	63		DH Y5
968 MCMA	21	2231E		2234D	N21	E14	.493	15248	23.0	3D	-N		C	2234	40	.4	D Y5
969 CULG	21	2345E	2345E	2352	N17	W80	.990	15235	16.0	7D	-N		P	2345	10		Y5
GRP66970	22	0054+1	0058+0	0108	N17	W84	.997	15235	15.7	14	-N				45		DH
CULG	22	0054	0058	0114	N18	W81	.993	15235	16.0	20	-N		C	0058	40		
VORO	22	0055	0059	0102	N16	W87	1.000	15235	15.5	7	-N		C	0058	54		DH
971 CULG	22	0147	0151	0208	N22	E17	.526	15248	23.3	21	-F		C	0151	20	.2	Y5
GRP66972	22	0320+2	0323+0	0334	N17	E09	.403	15248	22.8	14	-N						
CULG	22	0320	0323	0331D	N17	E09	.403	15248	22.8	11D	-N		P	0323	60	.7	F
MITK	22	0322	0323	0332	N17	E08	.397	15248	22.7	10	-N		C	0323	100	1.1	E
MANI	22	0328E	0328U	0335	N17	E09	.403	15248	22.8	7D	-F	3	P		30	.3	
973 CULG	22	0451	0453	0525	S32	E06	.462	15246	22.7	34	-F		C	0453	50	.6	F Y5
974 CULG	22	0504	0506	0513	N20	W80	.991	15235	16.2	9	-N		C	0506	20		T Y5
GRP66975	22	0618+0	0618+2	0625	N19	W79	.989	15235	16.3	7	-N						F
MANI	22	0618	0620	0625	N18	W79	.988	15235	16.3	7	-N	3	P		50	1.3	F
CULG	22	0618	0618	0625	N20	W80	.991	15235	16.3	7	-N		P	0618	10		T
976 MANI	22	0649	0651	0702D	N21	W67	.943	15254	17.3	13D	-F	3	V		20	.4	Y5
	22	0735	0737	NO FLARE PATROL													
	22	0810	0823	NO FLARE PATROL													
GRP66977	22	1004+6	1015+0	1021	N19	W80	.991	15235	16.4	17	-F				35		EH
KHAR	22	0910E		1050D	N17	W90	1.000	15235	15.6	100D	1F		P				T
KHAR	22	0957E		1017D	N20	W88	1.000	15235	15.8	20D	-F		P	1012	21		DH
MONT	22	1004	1015	1021	N19	W79	.989	15235	16.5	17	-N		C	1015	50		E
HTPR	22	1010	1015	1020	N19	W80	.991	15235	16.4	10	-F		C	1015	20		E
GRP66978	22	1020+2	1024+6	1046	N16	E05	.368	15248	22.8	26	-F				70	.8	E
HTPR	22	1020	1024	1050	N17	E05	.384	15248	22.8	30	-F		C	1024	60	.7	E
MONT	22	1021	1029	1042	N16	E05	.368	15248	22.8	21	-N		C	1029	70		
ZURI	22	1022	1024	1046	N16	E08	.382	15248	23.0	24	-F		P	1024	70	.8	
KHAR	22	1023E	1030	1040D	N16	E06	.372	15248	22.9	17D	-F		P	1030	90	1.0	E
979 KHAR	22	1040E	1043	1050D	N21	W75	.978	15254	16.8	10D	-F		P	1044	24		D Y5
980 KHAR	22	1133E		1136D	N21	W75	.978	15254	16.9	3D	-F		P	1133	24		D Y5
GRP66981	22	1136E	1139	1156D	N19	W89	1.000	15235	15.8	20	?F						H
	IMP.1 NO ± RAMY1																
KHAR	22	1136E		1156D	N17	W90	1.000	15235	15.7	20D	1F		P	1136	24		TH
KHAR	22	1139E	1139	1156D	N21	W89	1.000	15235	15.8	17D	-F		P	1139	28		DH
982 HTPR	22	1151	1154	1207	S30	W06	.432	15246	22.0	16	-N		C	1154	70	.8	E Y5
983 KHAR	22	1214E	1214	1233D	N17	W90	1.000	15235	15.8	19D	?F		P				T Y5
	IMP.1 NO ± RAMY1																
984 MCMA	22	1230	1239	1250	N18	W24	.545	15255	20.7	20	-N		C	1239	60	.7	E Y5
985 MCMA	22	1300	1308	1320	N18	W24	.545	15255	20.7	20	-N		C	1308	70	.8	E Y5
986 MCMA	22	1410	1412	1415	N17	W90	1.000	15235	15.8	5	-N		C	1412			Y5
987 MCMA	22	1420	1430	1442	N23	E24	.596	15250	24.4	22	-F		C	1430	35	.5	E Y5
988 MCMA	22	1505	1515	1530	N18	W24	.545	15255	20.8	25	-N		C	1515	75	.8	E Y5
989 MCMA	22	1817	1821	1832	N23	E23	.587	15250	24.5	15	-N		C	1821	30	.4	E Y5
990 MCMA	22	1859	1904	1922	S33	W01	.469	15246	22.7	23	-F		C	1904	20	.3	E Y5
991 MCMA	22	1923	1924	1930	N22	W04	.459	15248	22.5	7	-B		C	1924	30	.3	D Y5
992 MCMA	22	1946	1948	1950	N11	W09	.315		22.1	4	-F		C	1948	20	.2	D Y5

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OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS		MEASUREMENTS			REMARKS	
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMR DAY	MIN.		COND	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR AREA Sq. Deg.		
	APR																	
993 MCMA	22	1948	1951	1955	N21	W03	.442	15248	22.6	7	-F		C	1951	25	.3	D	Y5
994 MCMA	22	1950	1954	2002	N17	W13	.431	15244	21.9	12	-N		C	1952	30	.3	E	Y5
995 MCMA	22	2016	2028	2055	N19	W26	.575	15255	20.9	39	-N		C	2028	60	.8	E	Y5
996 MCMA	22	2116	2118	2130D	N16	W01	.359	15248	22.8	14D	-N		C	2118	30	.3	E	Y5
997 MCMA	22	2138	2141	2145	N22	W04	.459	15248	22.6	7	-F		C	2141	30	.3	E	Y5
998 CULG	22	2343	2350	2357	N24	E20	.573	15250	24.5	14	-F		C	2350	20	.2		Y5
999 MITK	23	0139	0146	0152	N24	E17	.550	15250	24.3	13	-F		C	0146	70	.9	DH	Y5
0 CULG	23	0230	0237	0246D	N23	E18	.545	15250	24.5	16D	-N		C	0237	60	.7	F	Y5
	23	0455	0508	NO FLARE PATROL														
	23	0518	0526	NO FLARE PATROL														
	23	0530	0537	NO FLARE PATROL														
	23	0547	0555	NO FLARE PATROL														
1 CULG	23	0637	0649	0657	N22	W07	.467	15248	22.8	20	-F		C	0649	60	.7		Y5
2 KANZ	23	0801E		0821	N27	W75	.982		17.7	20D	-F	1						Y5
3 KANZ	23	0809	0812	0815	N22	E14	.504	15250	24.4	6	-F	1						Y5
4 KANZ	23	1303	1307	1313	N22	W12	.491	15248	22.6	10	-F	1						Y5
5 KANZ	23	1313	1320	1341	N14	W90	1.000	15254	16.8	28	-F	1						Y5
6 KANZ	23	1542	1546	1552	N22	W22	.566	15244	22.0	10	-F	1						Y5
7 CULG	23	2117E	2120	2200	N18	W40	.715	15255	20.9	43D	-N		C	2120	100	1.4		Y5
8 CULG	23	2215	2218	2225D	N20	W23	.554	15248	22.2	10D	-F		C	2218	70	.9		Y5
9 CULG	23	2302	2320	2352	N19	W14	.464	15248	22.9	50	-F		C	2320	120	1.3	FJ	Y5
10 CULG	24	0008	0013	0019	N20	W40	.725	15255	21.0	11	-F		C	0013	20	.2		Y5
11 CULG	24	0040	0043	0105	N20	W16	.491	15248	22.8	25	-F		C	0043	30	.3		Y5
12 CULG	24	0108	0110	0155	N23	E05	.474	15250	24.4	47	-N		C	0110	100	1.2		Y5
13 CULG	24	0126	0131	0155	N22	W17	.524	15248	22.8	29	-N		C	0131	60	.7	F	Y5
14 CULG	24	0159	0201	0214	S23	E04	.318	15251	24.4	15	-N		C	0201	50	.5		Y5
15 CULG	24	0327	0330	0340	N20	W19	.516	15248	22.7	13	-N		C	0330	70	.8		Y5
16 CULG	24	0410	0411	0420	S23	E02	.313	15251	24.3	10	-F		C	0411	20	.2		Y5
17 CULG	24	0442	0444	0452	S30	W26	.575	15246	22.2	10	-F		C	0444	30	.4		Y5
18 CULG	24	0540	0540	0550	N15	W90	1.000	15254	17.5	10	-N		C	0540	20			Y5
19 CULG	24	0608	0614	0625	N21	W51	.832	15255	20.4	17	-F		C	0614	60	1.1		Y5
20 CULG	24	0619	0628	0637	N19	W20	.514	15248	22.8	18	-F		C	0628	60	.7	F	Y5
GRP67021	24	082444	0828	0839	N16	W14	.423	15248	23.3	15	-F							
KANZ	24	0824	0828	0838	N16	W16	.441	15248	23.2	14	-F	1						
WEND	24	0828		0839	N16	W13	.415	15248	23.4	11	-N							
22 ZURI	24	1124	1138	1158	N15	W16	.429	15248	23.3	34	-N		C	1138	90	1.1		Y5
23 ZURI	24	1208	1210	1218	N15	W16	.429	15248	23.3	10	-F		C	1210	70	.8		Y5
24 ZURI	24	1330	1334	1338	N15	W17	.439	15248	23.3	8	-N		C	1334	50	.6		Y5
25 ZURI	24	1442	1444	1504	N23	W02	.468	15250	24.5	22	-N		C	1444	70	.8		Y5
GRP67026	24	2155	2212	2240	N23	W07	.480	15250	24.4	45	-N				120	1.4	EK	
CULG	24	2155	2212	2250	N22	W07	.465	15250	24.4	55	-N		C	2212	120	1.4	K	
VORO	24	2215E		2230	N24	W08	.498	15250	24.3	15D	-N		C	2216	125	1.4	E	

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IMPOR-TANCE	OBS.		MEASUREMENTS			REMARKS	
	DATE APR	START	MAX. PHASE	END	APPROX LAT.	APPROX MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMR DAY	MIN.		COND	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR AREA Sq. Deg.		
	24	2212	2220	NO FLARE PATROL														
27 VORO	24	2308	2309	2313	S30	W33	.643	15246	22.5	5	-N		C	2309	81	1.0		Y5
GRP67028	24	2327+0	2328+1	2330D	N14	W24	.506	15248	23.2	3	-F				45	.5	D	
VORO	24	2327	2328	2330	N15	W25	.526	15248	23.1	3	-N		C	2328	63	.7	D	
CULG	24	2327	2329	0000	N14	W24	.506	15248	23.2	33	-F		C	2329	30	.3		
29 CULG	25	0033	0040	0105	N22	W30	.639	15248	22.8	32	-F		C	0040	60	.8	FK	Y5
30 VORO	25	0052	0053	0059	S30	W35	.663	15246	22.4	7	-N		C	0053	81	1.1		Y5
31 CULG	25	0108	0111	0130	N26	E90	1.001	15266	1.8	22	-N		C	0111	20		K	Y5
GRP67032	25	0110	0113	0123	S31	W35	.670	15246	22.4	13	-N				90	1.2	EHJ	
VORO	25	0110	0113	0123	S31	W36	.679	15246	22.3	13	-N		C	0113	90	1.2	EHJ	
MITK	25	0111E		0113D	S31	W35	.670	15246	22.4	2D	-N		P	0112	100	1.4	H	
GRP67033	25	0121+2	0124+1	0140	N21	W57	.879	15255	20.8	19	-N				50	1.0	DJ	
CULG	25	0121	0125	0145	N22	W56	.874	15255	20.9	24	-N		C	0125	60	1.2	J	
VORO	25	0123	0124	0134	N21	W59	.893	15255	20.6	11	-N		C	0124	45	.9	D	
34 MITK	25	0220	0222	0237	S31	W37	.689	15246	22.3	17	-N		C	0222	140	2.0		Y5
35 MITK	25	0326	0327	0328	N30	E90	1.001	15266	1.9	2	-F		C	0327	50		DGH	Y5
36 MITK	25	0333	0334	0336	S21	W07	.302	15251	24.6	3	-F		C	0334	50	.5	D	Y5
37 CULG	25	0425	0428	0500	S31	W30	.623	15246	22.9	35	-F		C	0428	60	.8	T	Y5
GRP67038	25	0922	0926+0	0938	S30	W31	.624	15246	23.1	16	-F				60	.8	F	
ZURI	25	0922	0926	0938	S31	W33	.651	15246	22.9	16	-N		C	0926	80	1.1		
MANI	25	0926E	0926U	0934D	S30	W30	.614	15246	23.1	8D	-F	2	V		50	.6	F	
39 KHAR	25	1030E		1040D	N19	E79	.988	15266	1.4	10D	-F		P				D	Y5
GRP67040	25	1320+5	1329+0	1349	N21	E72	.966	15266	0.0	29	-N						E	
MCMA	25	1320	1329	1355	N20	E76	.980	15266	1.3	35	1N		C	1329	60	2.5	E	
KANZ	25	1325	1329	1343	N22	E68	.949	15266	30.7	18	-N	1					FE	
41 MCMA	25	1336	1338	1345D	N25	W33	.692	15248	23.1	9D	-F		C	1338	20	.3	E	Y5
GRP67042	25	1348+0	1352+3	1405	N25	W33	.692	15248	23.1	17	-N						E	
KANZ	25	1348	1352	1404	N26	W34	.708	15248	23.0	16	-N	1					E	
MCMA	25	1348	1355	1405	N25	W33	.692	15248	23.1	17	-N		C	1355	25	.4	E	
GRP67043	25	1419+1	1428+1	1500	N19	E72	.964	15266	0.0	41	1B				90		D	
KANZ	25	1419	1429	1451A	N19	E71	.960	15266	30.9	32D	1B	2						
LVOV	25	1420	1428	1440D	N19	E72	.964	15266	1.0	20D	1N		C	1428	100		D	
MCMA	25	1420	1428	1500	N18	E74	.972	15266	1.1	40	1B		C	1428	80	3.0		
GRP67044	25	1535	1545	1655	N18	E72	.964	15266	0.0	80	1B						EK	
MCMA	25	1535	1545	1655	N18	E74	.972	15266	1.2	80	1B		C	1545	80	3.0	EK	
ZURI	25	1552E	1552	1655	N19	E71	.960	15266	1.0	63D	2N		P	1552	120			
45 MCMA	25	1811E		1830D	N28	E14	.580	15265	26.8	19D	-N		C	1818	30	.4	E	Y5
46 MCMA	25	2000E		2013D	N18	E72	.964	15266	1.2	13D	-F		C	2004	25	.8	D	Y5
	25	2034	2035	NO FLARE PATROL														
	25	2110	2112	NO FLARE PATROL														
	25	2115	2133	NO FLARE PATROL														
	25	2148	2203	NO FLARE PATROL														
GRP67047	25	2210+1	2216+0	2227	N28	E77	.987	15266	.7	17	-N				30		D	
MCMA	25	2210	2216	2227	N28	E77	.987	15266	1.7	17	-B		C	2216	20	.7	D	
VORO	25	2211	2216	2224	N30	E78	.990	15266	1.8	13	-N		C	2216	54		D	
CULG	25	2219E	2219	2235	N28	E73	.976	15266	1.4	16D	-N		C	2219	20			
	25	2232	2235	NO FLARE PATROL														
GRP67048	25	2304+1	2310+0	2327	S30	W54	.836	15246	21.9	23	1F				110	2.1	F	
CULG	25	2304	2310	2335	S28	W54	.831	15246	21.9	31	1N		C	2310	110	2.1	F	
VORO	25	2305		2319	S30	W55	.844	15246	21.8	14	1F		C	2309	116	2.1	E	
MANI	25	2310E	2310U	2318D	S30	W51	.811	15246	22.1	8D	-F	2	V		30	.5	F	
	25	2329	2337	NO FLARE PATROL														

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OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS	
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP DAY	MIN.		CONC	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR AREA Sq. Deg.		
	APR																	
	25	2343	0000	NO FLARE PATROL														
49 CULG	26	0008	0020	0115	N17	W41	.718	15248	22.9	67	1F		C	0020	180	2.5	FT	Y5
50 CULG	26	0128	0129	0140	N23	W43	.769	15248	22.8	12	-F		C	0129	40	.6	T	Y5
51 CULG	26	0148	0152	0205	N22	E90	1.000	15266	2.8	17	-N		C	0132	20			Y5
52 CULG	26	0155	0200	0215	N22	W42	.755	15248	22.9	20	-F		C	0200	40	.6		Y5
GRP67053	26	0238>9	0250 0307	0327	N17	W71	.958	15255	20.8	49	-N							
CULG	26	0238	0250	0335	N16	W71	.957	15255	20.8	57	1N		C	0250	100			
MANI	26	0305	0307	0319	N18	W72	.963	15255	20.7	14	-F	3	P		50	1.1		
54 CULG	26	0250	0251	0256	N21	W44	.768	15248	22.8	6	-F		C	0251	30	.5		Y5
55 CULG	26	0358	0405	0416	N14	W42	.715	15248	23.0	18	-N		C	0405	20	.3	T	Y5
56 CULG	26	0430	0435	0445	N26	E68	.954	15266	1.3	15	-N		C	0435	30			Y5
57 CULG	26	0433	0443	0455	N22	W45	.782	15248	22.8	22	-F		C	0443	40	.6	T	Y5
58 CULG	26	0517	0520	0525	N23	W42	.760	15248	23.1	8	-N		C	0520	40	.6		Y5
59 CULG	26	0613	0625	0634	N18	W49	.802	15248	22.6	21	-F		C	0625	40	.7		Y5
60 CATA	26	0705E	0705	0710	N22	W44	.773	15248	23.0	5D	-B	2	P	0705	28	.4		Y5
GRP67061	26	0727+4	0731+4	0745D	S31	W45	.763	15246	22.9	18	-N							
MANI	26	0727	0731	0743D	S31	W45	.763	15246	22.9	160	-N	3	P		70	1.1		
KANZ	26	0731	0735	0739A	S29	W45	.755	15246	22.9	8D	-N	1						
CATA	26	0740E	0740	0745D	S32	W44	.759	15246	23.0	5D	-B	2	P	0740	56	.8		
62 CATA	26	0745	0745	0745D	N15	W44	.741	15248	23.0		1B	2	P	0745	140	2.1		Y5
63 ZURI	26	0822E	0833	0851	N17	E65	.925	15266	1.2	29D	-F		P	0833	50			Y5
64 ZURI	26	0823	0825	0833	N24	W44	.783	15248	23.0	10	-F		C	0825	60	1.0		Y5
65 ZURI	26	1043	1049	1101	N17	E64	.919	15266	1.2	18	-F		C	1049	70			Y5
66 KHAR	26	1106E	1106	1110D	N22	E60	.902	15266	1.0	4D	-F		P				D	Y5
GRP67067	26	1339+2	1345+5	1419D	N20	E59	.891	15266	0.0	40	1N				120	2.6	H	
MCMA	26	1339	1350	1500D	N19	E60	.896	15266	1.1	81D	1B		C	1350	100	2.4	FH	
LVOV	26	1339	1348	1349D	N20	E58	.883	15266	30.9	10D	1N		C	1348	150	3.5	DC	
ZURI	26	1341	1345	1419	N20	E59	.891	15266	1.0	38	1N		C	1345	100	2.4		
GRP67068	26	1549+2	1610	1640D	N19	E57	.874	15266	30.9	51	-N						E	
MCMA	26	1549E	1610	1640D	N19	E58	.881	15266	1.0	51D	-N		C	1610	80	1.8	E	
KANZ	26	1551		1602D	N19	E56	.866	15266	30.9	11D	-N	1					E	
69 MCMA	26	1713	1717	1730	S32	W51	.818	15246	22.9	17	-B		C	1717	50	.8	E	Y5
70 MCMA	26	1855	1857	1901	N18	E57	.871	15266	1.1	6	-N		C	1857	40	.8	E	Y5
71 MCMA	26	1920	1925	1938	N20	E56	.868	15266	1.0	18	-F		C	1925	50	1.1	E	Y5
72 MCMA	26 IMP>1	1940 NO	1958 RAMY1	2040	N20	E56	.868	15266	1.0	60	?N		C	1958	150	3.3	F	Y5
73 MCMA	26	2116	2123	2128	N19	E56	.866	15266	1.1	12	-F		C	2123	20	.5	D	Y5
GRP67074	26	2133+0	2135+1	2142	S30	W50	.803	15246	23.1	9	-N				40	.7	D	
CULG	26	2133	2135	2142	S31	W51	.815	15246	23.1	9	-N		C	2135	50	.9		
MCMA	26	2133	2136	2142	S30	W50	.803	15246	23.1	9	-N		C	2136	25	.5	D	
75 CULG	26	2200	2203	2215	N22	W33	.668	15250	24.4	15	-F		C	2203	40	.8		Y5
GRP67076	26	2202+1	2209+0	2229	N18	W85	.998	15255	20.5	27	-N							
CULG	26	2202	2209	2230	N18	W85	.998	15255	20.5	28	1N		C	2209	100			
MCMA	26	2203	2209	2228	N18	W85	.998	15255	20.5	25	-N		C	2209				
GRP67077	26	2210+1	2218+2	2227	N19	E54	.850	15266	0.0	17	-F				50	.9	D	
MCMA	26	2210	2218	2225D	N19	E54	.850	15266	1.0	15D	-N		C	2218	40	.8	D	
CULG	26	2211	2220	2227	N19	E55	.858	15266	1.0	16	-F		C	2220	65	1.3		

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IMPOR-TANCE	OBS.		MEASUREMENTS			REMARKS	
	DATE APR	START	MAX. PHASE	END	APPROX LAT.	APPROX MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMR DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR AREA Sq. Deg.		
78 CULG	26	2300	2305	2320	N19	E53	.841	15266	30.9	20	-F		C	2305	40	.8	J	Y5
79 MANI	27	0128E	0129	0132	S32	W56	.857	15246	22.9	4D	-F	3	P		50	.9		Y5
80 CULG	27	0305	0310	0324	N28	E56	.891	15266	1.3	19	-N		C	0310	50	1.0	T	Y5
81 CULG	27	0311	0311	0314	N21	E90	1.000	15270	3.9	3	-F		C	0311	20			Y5
82 CULG	27	0343	0345	0405	N20	E52	.836	15266	1.1	22	-F		C	0345	60	1.1	T	Y5
83 CULG	27	0420	0421	0434	N20	E52	.836	15266	1.1	14	-F		C	0421	30	.6	T	Y5
84 MANI	27	0707	0710	0718	N20	E52	.836	15266	1.2	11	-F	2	P		30	.5		Y5
85 CATA	27	0945E	0950	1005D	N22	E65	.933	15266	2.3	20D	1B	2	P	0950	84			Y5
86 CATA	27	1015	1015	1020	N22	E75	.978	15266	3.1	5	-B	2	C	1015	28			Y5
87 LVOV	27 IMP-1 NO + RAPY1	1306	1309	1320D	N20	E45	.772	15266	30.9	14D	?N		C	1309	200	3.2	D	Y5
88 MCMA	27	1605	1606	1612	N25	E45	.796	15266	1.0	7	-N		C	1606	40	.7	EL	Y5
89 MCMA	27	1923	1937	2045	N20	E42	.743	15266	1.0	82	-N		C	1937	40	.6	EL	Y5
90 MCMA	27	2046	2048	2105	N20	E42	.743	15266	1.0	19	-N		C	2048	60	1.0	E	Y5
91 CULG	27	2219	2221	2227	N16	W67	.936	15248	22.9	8	-F		C	2221	80			Y5
92 CULG	27	2312	2323	0000	N18	E40	.713	15266	1.0	48	-N		C	2323	60	.8	TF	Y5
93 CULG	27	2334	2337	0013	N24	W66	.941	15248	23.0	39	-N		C	2337	40			Y5
GRP67094	28	0010+0	0011+1	0041	N27	E45	.805	15266	.4	31	-B				100	1.7	U	
MANI	28	0010	0012	0027	N28	E45	.810	15266	1.4	17	-N	3	P		90	1.5	U	
CULG	28	0010	0011	0055	N27	E45	.805	15266	1.4	45	1B		C	0011	120	2.0		
95 CULG	28	0013	0027	0129	N30	E58	.908	15266	2.4	76	1F		C	0027	140	3.5	S	Y5
96 CULG	28	0439	0449	0500	N24	W69	.956	15248	23.0	22	-N		C	0449	40			Y5
97 CULG	28	0500	0505	0520	S25	W46	.751	15251	24.8	20	-N		C	0505	80	1.2	VL	Y5
98 ISTA	28	0645		0705	N20	E35	.672	15266	30.9	20	-F						E	Y5
99 ZURI	28	0822	0826	0828	S20	W49	.767	15251	24.7	6	-F		C	0826	50	.8		Y5
100 KHAR	28	0940E	0950	1010D	N20	W79	.988	15248	22.5	30D	-F		P	0950	15		D	Y5
	28	1005	1010	NO FLARE PATROL														
GRP67101	28	1023E	1023 1027+1	1035	N21	E40	.729	15266	.4	12	-F						D	
KANZ	28	1023E	1023	1027	N20	E34	.662	15266	1.0	4D	-F	1						
KHAR	28	1025E	1028	1036D	N20	E40	.723	15266	1.4	11D	-N		P	1030	21		D	
KANZ	28	1027	1027	1033	N23	E41	.749	15266	1.5	6	-F	1						
	28	1036	1053	NO FLARE PATROL														
GRP67102	28	1058E	1058+2	1124	N22	E44	.772	15266	.8	26	-F						E	
ZURI	28	1058E	1058	1124	N24	E46	.795	15266	1.9	26D	-F		P	1058	40	.7	E	
KHAR	28	1058E	1100	1113D	N21	E42	.748	15266	1.6	15D	1F		P	1102	170	2.4	E	
GRP67103	28	1115+9	1126+4	1133	N26	W73	.974	15248	23.0	18	-F						D	
KHAR	28	1115E		1135D	N26	W73	.974	15248	23.0	20D	-F		P	1121	150			
MCMA	28	1123	1130	1133	N20	W75	.976	15248	22.8	10	-N		C	1130	30	1.0	D	
ZURI	28	1124	1126	1132	N26	W72	.970	15248	23.1	8	-F		C	1126	70			
104 KHAR	28	1144E	1145	1149D	N20	E35	.672	15266	1.1	5D	-F		P					Y5
GRP67105	28	1155+1	1155+1	1203	N22	E34	.676	15266	0.0	8	-N						D	
MCMA	28	1155	1159	1204	N22	E31	.646	15266	30.8	9	-B		C	1159	30	.4	D	
ZURI	28	1156	1200	1202	N22	E37	.705	15266	1.3	6	-N		C	1200	90	1.3		

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OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IMPOR-TANCE	OBS.		MEASUREMENTS			REMARKS	
	DATE APR	START	MAX. PHASE	END	APPROX LAT.	APPROX MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMR DAY	MIN.		CONC	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR AREA Sq. Deg.		
GRP67106	28	1304+2	1335+3 2221	2232	N22	E38	.715	15266	.4	568	3B				1590	22.6	FLUXY	
MCMA	28	1304	1335	2237D	N23	E35	.693	15266	1.2	573D	3B		C	1335	1600	22.0	FLTUXY	
KANZ	28	1305	1338	1630D	N22	E38	.715	15266	1.4	205D	3B	1					FULT	
ZURI	28	1306	1336	1550D	N21	E39	.719	15266	1.5	164D	3B		P	1336	1590	24.0		
LOCA	28	1420E		1500D	N20	E37	.692	15266	1.4	40D	2N		P	1438	815	12.3	B	
CULG	28	2216	2221	2226	N26	E38	.741	15266	1.8	10	-F		C	2221	80	1.2		
GRP67107	28	1500	1504+0	1512	N17	W82	.994	15266	22.5	12	-F						E	
MCMA	28	1500	1504	1511D	N17	W85	.998	15266	22.3	11D	-N		C	1504			E	
ZURI	28	1504E	1504	1512	N17	W79	.987	15266	22.7	8D	-F		P	1504	58			
108 MCMA	28	1812	1814	1821	N19	E51	.823	15266	2.6	9	-B		C	1814	60	1.1	H	Y5
109 MCMA	28	2152E		2203D	N20	E24	.559	15266	30.7	11D	-F		C	2200	60	.8	E	Y5
110 CULG	28 IMP.1	2334 NO	2344 PALE1	0005	N26	E35	.714	15266	1.6	31	?B		C	2344	140	2.1	L	Y5
GRP67111	29	0410+1	0412+0	0417	N21	E26	.588	15266	.1	7	-F				45	.6		
CULG	29	0410	0412	0418	N21	E27	.597	15266	1.2	8	-N		C	0412	60	.8		
MANI	29	0411	0412	0415	N22	E25	.588	15266	1.0	4	-F	3	P		30	.3		
GRP67112	29	0437+8	0446+1	0503	N19	E22	.528	15266	30.8	26	-F						L	
CULG	29	0437	0447	0503	N18	E21	.508	15266	30.8	26	-F		C	0447	140	1.6		
MANI	29	0442	0446	0455	N19	E22	.528	15266	30.8	13	-F	3	P		70	.8	F	
TACH	29	0445	0446	0503	N19	E22	.528	15266	30.8	18	1F		C	0451	265	3.1	EL	
GRP67113	29	0527+4	0532+1	0543	N30	E41	.790	15266	1.3	16	1F				130	2.2	ELS	
CULG	29	0527	0532	0548	N33	E43	.822	15266	2.5	21	1F		C	0532	120	2.2	S	
TACH	29	0531	0533	0537	N28	E40	.770	15266	2.2	6	1F		C	0533	133	2.2	EL	
114 MANI	29	0554	0557	0605	N19	E21	.518	15266	30.8	11	-F	3	P		40	.4	F	Y5
115 KANZ	29	0801		0825	N24	E19	.558	15266	30.8	24	-F	1					FE	Y5
	29	1115	1125	NO FLARE PATROL														
	29	1135	1220	NO FLARE PATROL														
116 CATA	29	1205E	1205	1205D	N28	E29	.679	15266	1.7		-N	2	P	1205	84	1.1		Y5
	29	1225	1229	NO FLARE PATROL														
	29	1232	1237	NO FLARE PATROL														
117 KANZ	29	1258	1302	1312	N18	E17	.469	15266	30.8	14	-N	1						Y5
	29	1326	1353	NO FLARE PATROL														
	29	1355	1419	NO FLARE PATROL														
118 MCMA	29	1455		1510D	N20	E16	.485	15266	30.8	15D	-F		C	1504	40	.5	E	Y5
119 MCMA	29	2010E		2211D	N20	E14	.470	15266	30.9	121	2B		P	2012	500	6.0	BYZ	Y5
120 CULG	29	2236	2241	2258	N18	W85	.998	15248	23.6	22	-F		C	2241	30			Y5
121 CULG	29	2240	2245	2304	N27	E23	.622	15266	1.7	24	-F		C	2245	60	.8		Y5
122 CULG	29	2344	2350	0004	N18	E09	.408	15266	30.7	20	-F		C	2350	80	.9	T	Y5
123 CULG	30	0105	0108	0140	N29	E21	.628	15266	1.6	35	-N		C	0108	100	1.3	V	Y5
124 CULG	30	0221	0231	0245	N18	E09	.407	15266	30.8	24	-F		C	0231	40	.4	T	Y5
125 CULG	30	0323	0344	0412	N18	E09	.407	15266	30.8	49	-F		C	0344	120	1.3	T	Y5
GRP67126	30	0407+3	0410+6	0429	N18	W90	1.000	15248	23.4	22	1N				90		D	
CULG	30	0407	0410	0422	N18	W90	1.000	15248	23.4	15	1F		C	0410	60			
TACH	30	0410	0416	0436	N19	W90	1.000	15248	23.4	26	1B		C	0416	132		D	
127 CULG	30	0414	0419	0505	N30	E31	.711	15266	2.5	51	-F		C	0419	50	.7	L	Y5
GRP67128	30	0440+1	0442+3	0451	N21	E11	.462	15266	0.0	11	?F						ELU	
CULG	30 IMP.2	0440	0442	0448	N19	E07	.411	15266	30.7	8	F		C	0442	70	.7	T	
TACH	30	0441	0445	0454	N24	E16	.534	15266	1.4	13	2F		C	0445	442	5.3	ELU	
129 CULG	30	0520	0535	0541D	N17	E07	.381	15266	30.7	21D	-F		C	0535	90	1.0	T	Y5

Hα SOLAR FLARES

APRIL 1978

OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMR DAY	MIN.		CONF.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR AREA Sq. Deg.	
	APR																
130 KANZ	30	0720	0723	0738	N18	E06	.392	15266	30.8	18	-F	1					D Y5
GRP67131	30	0810		0841	N28	E17	.591	15266	.6	31	-N						F
KANZ	30	0810		0841	N28	E17	.591	15266	1.6	31	-N	2					F
CATA	30	0830E	0830	0830D	N28	E17	.591	15266	1.6		-B	2	P	0830	112	1.4	
132 KANZ	30	0938		1006	N19	E06	.407	15266	30.9	28	1N	2					ET Y5
133 KANZ	30	0944	0947	0958	S27	E90	.999	15280	7.2	14	-N	2					Y5
GRP67134	30	1006+0	1012	1021	N30	E15	.604	15266	.5	15	-F						
KANZ	30	1006	1012	1021	N30	E15	.604	15266	1.5	15	-F	*					
KHAR	30	1006E		1006D	N30	E15	.604	15266	1.5		-F	*	P				B
135 MCMA	30	1155	1158	1205	S27	E90	.999	15280	7.2	10	-F		C	1158			CAP Y5
GRP67136	30	1218+3	1223	1236	N20	E05	.419	15266	30.9	18	-N				70	.8	EH
MCMA	30	1218	1223	1300	N20	E04	.418	15266	30.8	42	-B		C	1223	50	.6	EH
KANZ	30	1221		1235	N20	E05	.419	15266	30.9	14	-F	2					
KHAR	30	1224E	1224	1236D	N18	E06	.392	15266	1.0	12D	-F		P	1224	90	1.0	E
GRP67137	30	1320	1330+3	1350D	N28	E13	.568	15266	.5	30	-F				120	1.5	FL
MCMA	30	1320	1330	1350D	N28	E11	.559	15266	1.4	30D	-N		C	1330	125	1.6	FL
KHAR	30	1330E	1333	1343D	N28	E15	.579	15266	1.7	13D	-F		P	1333	110	1.4	
KANZ	30	1331		1331A	N27	E13	.555	15266	1.5		-F	1					F
138 MCMA	30 IMP,3 NO	1420	1455 RAMY1	1659D	N28	E14	.574	15266	1.6	279D	?B		C	1455	1200	15.0	FLTUX Y5
139 MCMA	30	1700E		1718D	S27	E90	.999	15280	7.5	18D	-N		P	1718			D Y5
140 MCMA	30	1827	1833	1840	S27	E90	.999	15280	7.5	13	-F		C	1833			D Y5
141 MCMA	30	1840	1846	1859D	S28	W61	.887	15252	26.2	19D	-F		C	1846	40	.8	E Y5
GRP67142	30	2231+3	2239+6	2310	N20	00	.411	15266	30.9	39	-F						FK
CULG	30	2231	2245	2323	N20	E00	.411	15266	30.9	52	-N		C	2245	160	1.6	FK
MANI	30	2234	2239	2256	N21	E01	.428	15266	1.0	22	-F	3	P		50	.5	F
143 CULG	30	2321	2327	2340	S28	E90	.999	15280	7.7	19	-N		C	2327	40		Y5

DAILY FLARE INDICES

Includes all Flares

APRIL 1978

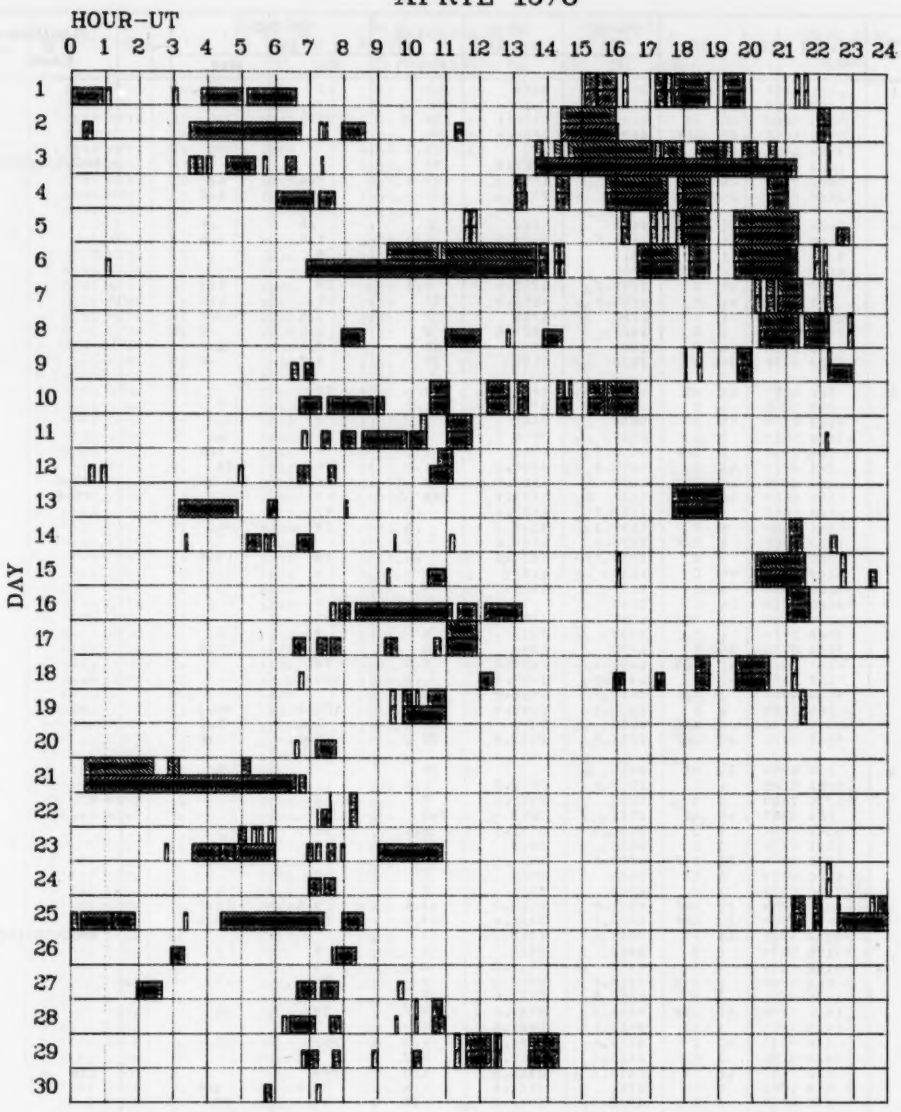
Date	Flare Index	HR. OBS.	Date	Flare Index	HR. OBS.	Date	Flare Index	HR. OBS.
780401	7.31	20.6	780411	63.97	23.1	780421	22.19	21.4
780402	19.21	22.0	780412	180.95	23.6	780422	81.57	23.8
780403	17.25	18.6	780413	90.28	22.5	780423	30.61	23.4
780404	17.00	19.9	780414	57.70	23.6	780424	72.00	23.9
780405	59.89	20.3	780415	136.39	22.3	780425	53.46	22.9
780406	84.34	15.3	780416	41.19	23.3	780426	71.20	24.0
780407	100.37	22.6	780417	32.32	23.1	780427	25.97	24.0
780408	548.85	22.0	780418	45.10	22.4	780428	1364.89	23.6
780409	71.96	23.4	780419	61.12	22.8	780429	524.68	22.1
780410	51.09	20.8	780420	20.37	24.0	780430	83.49	24.0

When no Flare Index is given, it is 0 for that day.

INTERVALS OF NO FLARE PATROL OBSERVATION

FOR PRECEDING SOLAR FLARE TABLE

APRIL 1978



Observatories included in total patrol:

Abastumani	Herstmonceux	Kiev	Mitaka	Tehran
Athenes	Holloman	Kodaikanal	Monte Mario	Upice
Bucharest	Istanboul	Locarno	Palehua	Voroshilov
Catania	Kandilli	Lvov	Ramey	Wendelstein
Culgoora	Kanzelhohe	Manila	Tashkent	Zürich
Haute Provence	Kharkov	McMath-Hulbert		

Times of no flare patrol are shown by the shaded area for each day divided into times of no cinematographic patrol (bottom half of day) and times of neither visual nor cinematographic patrol (top half of day).

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

APRIL 1978

APR 1978	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	POLARIZATION OR REMARKS
1	221	ABST	44 NS	0500	0643	240	12			
	260	ONDR	43 NS	0840		386 D	47			
	245	SGMR	44 NS	1030 E	1746.1	755 D	35.7			
	9100	ARCE	20 GRF	0821.2	0852.4	94				
	9100	ARCE	24 R	1127.8		29.5				
	1420	ARCE	20 GRF	1250.2	1317.3	92				RECORDDISTURBED
	2800	OTTA	240 R	1445	1514	29	2.4	1.2		
	2695	PENT	240 R	2015	2310	175	4.6	1.3		
2	2695	PENT	1 S	0003	0004	2	.8	.4		
	2695	PENT	1 S	0023.5	0023.9	1	1.8	.9		
	5730	IRKU	1 S	0313	0313.5	2	5			R
	6100	KISV	2 S/F	1208	1208.3	2	4			
	127	TORN	45 C	1209.2	1210.4	1.8	29	6.9		
	260	ONDR	41 F	1250.8	1252.8	38	15	1.2		
	2800	OTTA	1 S	1740	1741	2	1.4	.7		
	2800	OTTA	1 S	1823	1823.5	2	1.6	.8		
	2800	OTTA	240 R	1903	1935	32	2.4	1.2		
	2800	OTTA	240 R	2020	2035	15	1.2	.6		
3	221	ABST	44 NS	0500	1006.2	120	31			
	260	ONDR	8 S	0750.5	0751.7	1.5	28	6		
	6100	KISV	45 C	0840	0841	3	3			
	3100	CRIM	1 S	0953	0955	2.5	4	1		
	260	ONDR	2 S/F	0955.5	0956	2	7	1.8		
	221	ABST	45 C	1005.8	1006.2	1.5	41	24		
	410	SGMR	44 NS	1027 E	1122.5	760 D	75.6			3G,5
	245	SGMR	44 NS	1027 E	1500.1	760 D	60			3G,5
	408	TRST	7 C	1122.2	1122.4	.7	87			
	260	ONDR	8 S	1122.3	1122.3	.3	23			
	1420	ARCE	2 S/F	1126.4	1126.6	.7				
	260	ONDR	3 S	1133.1	1133.1	.6	14	1.7		
	6100	KISV	45 C	1151	1152	4	4			
	3100	CRIM	1 S	1159	1205	9	4	1		
	3100	CRIM	24 R	1208			2			
	260	ONDR	42 SER	1231	1252.8	22	23			
	3100	CRIM	1 S	1309	1311	6	3	1		
	2800	OTTA	240 R	1330	1340	10	1.8	.9		
	260	ONDR	42 SER	1451.4	1459.5	9.5	24			
	237	TRST	41 F	1459.8	1459.9	.3	105			7L
	9100	ARCE	2 S/F	1512.5	1512.8	1.2				
	245	SGMR	6 S	2050.3	2051.9	2	139.2	41.8		3G,5
	2800	OTTA	20 GRF	2050	2100	22	2.2	1.1		
	2800	OTTA	20 GRF	2231.5	2233.5	20	5.2	1.8		
4	100	GORK	44 NS	0404 E		50		5		
	9100	GORK	1 S	0512.6	0512.8	1.6	10.6	5		
	5730	IRKU	1 S	0512	0512.5	2	8			R
	221	ABST	44 NS	0530	0851	240	15			
	9100	GORK	1 S	0531.5	0531.6	2.1	10.6	5		
	6100	KISV	3 S	0845	0846	2	3			
	4995	ATHN	20 GRF	0859.8	0914.7	44	19.9	11.9		
	6100	KISV	3 S	0900	0901	2	2			
	3100	CRIM	1 S	0900	0901	2	2	1		
	8800	ATHN	20 GRF	0901.8	0916.9	37.4	19.5	11.7		
	2695	ATHN	20 GRF	0903.7	0911.4	44.1	16.1	9.6		
	9100	ARCE	40 F	0908.6	0913.7	10				RECORDDISTURBED
	3100	CRIM	1 S	0910	0911	2	5	2		
	6100	KISV	3 S	0910	0911.3	3	3			
	260	ONDR	4 S/F	0910.3	0912	2	74	15		
	1470	BERL	3 S	0910.5	0911.4	2	6.8			
	1415	ATHN	20 GRF	0910.5	0920.6	32.2	20	12		
	1420	ARCE	3 S	0910.6	0911.3	2				
	234	POTS	45 C	0910.8	0911.3	1.2	210	30		
	3000	BERL	3 S	0910.8	0911.4	1.7	8.2			
	237	TRST	41 F	0910.8	0911.2	1.3	785			11L
	650	GORK	1 S	0911	0911.6	1.4	3.6	1.8		
	200	GORK	8 S	0911.3	0911.6	.7	44	22		
	202	IZMI	5 S	0911.3	0911.3	.7	745	375		
	100	GORK	8 S	0911.3	0911.6	.9	150			
	113	POTS	45 C	0911.4	0911.4	.4	1000	50		
	3100	CRIM	1 S	0913	0914	3	6	2		
	3000	BERL	20 S	0913.5	0914.9	2.5	8.2			
	1420	ARCE	2 S/F	0913.6	0914.9	3				
	9500	BERL	20 S	0914	0915	3	8.5			
	6100	KISV	3 S	0914	0914.7	4	5			
	1470	BERL	1 S	0914	0914.9	2	3.9			
	9100	GORK	1 S	0914.4	0915.1	2.3	10	5		
	410	SGMR	44 NS	1025 E	1940.2	763 D	20			3
	245	SGMR	44 NS	1025 E	1657.4	763 D	12.4			3
	234	POTS	45 C	1025	1025.2	.4	100	15		
	237	TRST	41 F	1025	1025.2	.3	195			28L
	260	ONDR	8 S	1025	1025	.5	66	14		
	9100	GORK	20 GRF	1210.9	1220.9U	12.8	11	5.5		

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

APRIL 1978

APR 1978	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	POLARIZATION OR REMARKS
	2800	OTTA	240 R	1420	1430	10	1.8	1		
	2800	OTTA	23 GRF	1442	1550	155	2			
	2800	OTTA	20 GRF	1650	1653	15	2	1		
	2300	OTTA	20 GRF	1755	1830	95	2.4	1.7		
	2800	OTTA	20 GRF	2028	2155	260	16.8	6.2		
	1415	MANI	3 S	2215.3	2215.7	.7	7.4	4.9		
	2695	MANI	3 S	2215.4	2215.7	.6	16.7	11.2		
	4995	MANI	3 S	2215.6	2215.8	1.4	26.8	17.9		
	8800	MANI	3 S	2215.7	2215.8	.3	74.4	49.6		
5	221	ABST	44 NS	0500	0730	240	18			
	15000	KISV	3 S	0612	0613	2	7			
	6100	KISV	2 S/F	0612.3	0613	1	3			
	15000	KISV	45 C	0626	0628	3	4			
	9100	GORK	1 S	0627.6	0629	3.3	11	5.5		
	6100	KISV	20 GRF	0631.3	0632	3	2			
	9500	BERL	20	0705	0707	3	4.3			
	3100	CRIM	4 S/F	0745	0751.5	40	5	2		
	3000	BERL	22	0747	0751	103	10			
	6100	KISV	45 C	0747	0749		7			
	4995	ATHN	3 S	0747.3	0751.1	8.7	15.1	9		
	9500	BERL	20	0747.5	0913.5	95	8.8			
	2950	GORK	20 GRF	0748	0757.5	36.2	16.3			
	9100	GORK	20 GRF	0748.3	0912.6	103.3	19.9	5.6		
	5730	IRKU	2 S	0748	0751.5	11	14			R
	113	POTS	48 C	0817.3	0819.7	2.5	600	20		
	6100	KISV	1 S	0839	0839.5	6	4			
	536	ONDR	3 S	0903.4	0903.4	.2	17			
	260	ONDR	2 S/F	0903.8	0904.5	1	13	3		
	808	ONDR	2 S/F	0904.2	0904.2	1	55	8		
	6100	KISV	3 S	0945	0947.5	9	4			
	245	SGMR	44 NS	1023 E	1757.8	767 D	63.4			3
	410	SGMR	44 NS	1023 E	1428.2	767 D	35.7			3
	2800	OTTA	20 GRF	1307	1312	38	5.2	1.8		
	3100	CRIM	1 S	1309	1312	9	4	1		
	536	ONDR	3 S	1334.3	1334.3	.2	21			
	4995	ATHN	3 S	1348.4	1353.8	21.9	26.9	8.1		
	2800	OTTA	20 GRF	1350	1354.1	13	5	1.4		
	9500	BERL	20 S	1351.5	1353.5	19	10			
	3000	BERL	20 S	1352.5	1353.8	10	7.1			
	2800	OTTA	240 R	1500	1520	20	2.2	1.1		
	2800	OTTA	23 GRF	1620	1647	80	2.4			
	4995	SGMR	3 S	1727.8	1729.1	5	73.8	22.1		
	2800	OTTA	8 S	1728.5	1728.9	.5	5.4	2.7		
	8800	SGMR	3 S	1728.7	1729.1	1.4	33.6	10		
	2800	OTTA	22 GRF	1903		57	1.4			
	2695	PENT	8 S	2308.9	2309	.3	1.4	.7		
	606	MANI	8 S	2308.9	2309	.3	172	88		
	1415	MANI	1 S	2308.9	2309	.2	4.2	2.5		
6	2695	PENT	40 F	0053.8	0054	4	4.6			
	700	SYDN	1 S	0053.8	0054	.2				
	1400	SYDN	1 S	0053.8	0054	.4				
	700	SYDN	40 F	0510	0513	.6				
	1400	SYDN	4 S	0510	0513	1.2				
	700	SYDN	8 S	0517.6	0517.8	.2				
	1400	SYDN	40 F	0517.6	0518	.4				
	5730	IRKU	1 S	0537	0537.4	1	4			R
	200	HIRA	7 C	0540	0540.5	2.5	55	20		HR
	100	HIRA	7 C	0541	0541.2	1.5	120	70		O
	10500	BERN	1 S	0602.1	0602.1	6	8.5			
	6100	KISV	2 S/F	0602.3	0604	8	7			
	5730	IRKU	1 S	0602	0603.3	4	8			R
	2950	GORK	1 S	0603.6	0604.4	1.3	16.4			
	9100	GORK	1 S	0604	0604.4	.7	11.3	5.5		
	950	GORK	5 S	0604	0604.1	.6	34	17		
	650	GORK	4 SF	0604	0604.2	.5	55	9		
	260	ONDR	44 NS	0643 E		502 D	50	4		
	127	TCRN	43 NS	0850 U	1307.9	370 D	110			V=1
	245	SGMR	44 NS	1022 E	2018.4	769 D	140.7			3,CONT
	410	SGMR	44 NS	1022 E	1956.9	769 D	45.8			3,CONT
	100	GORK	43 NS	1154		66		10		
	208	VORO	44 NS	2200 E		240 D		7		
	536	ONDR	3 S	0648	0648	.2	18			
	9100	GORK	1 S	0653.6	0655.7	5.3	8.4	3		
	2695	ATHN	20 GRF	0712.6	0714.4	15.6	5.6	1.8		
	6100	KISV	3 S	0713	0714	6	8			
	8800	ATHN	3 S	0713.3	0714.6	12	14	4.2		
	10500	BERN	20 GRF	0713.3	0714.2	4	14			
	9500	BERL	1 S	0713.5	0714.3	4	8.8			
	3100	CRIM	1 S	0713.5	0714.5	4	9	3		
	4995	ATHN	3 S	0713.6	0714.6	12.5	13.5	4.1		
	1470	BERL	4	0713.8	0714.5	2.2	5.7			
	3000	BERL	4	0713.8	0714.2	1.7	11			
	9100	GORK	1 S	0714.2	0714.7	6.2	14.3	5		

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	536	ONDR	4 S/F	0714.5	0714.5	1.5	124	4		
	5730	IRKU	45 C	0714	0714.4	10	18	4		R
	808	ONDR	3 S	0714	0714	.2	35			
	5730	IRKU		0714	0715.3		8			R
	536	ONDR	3 S	0748.5	0748.5	.2	26			
	9100	GORK	20 GRF	0750.3	0752.3	8.1	9.8	4.5		
	3100	CRIM		0809	0825		6	2		
	3100	CRIM		0809	0815		7	2		
	3100	CRIM	41 F	0809	0819	25	6	2		
	9100	GORK	20 GRF	0823.3	0827.2	10.6	11.4	5		
	3100	CRIM	25 R	0835	1108		10			
	6100	KISV	45 C	0837	0837.5	3	5			
	9100	GORK	20 GRF	0859.1	0922.1	27.9	13	5.7		
	536	ONDR	8 S	0909	0909	.2	33			
	6100	KISV	40 F	0916	0922	6	3			
	3100	CRIM	3 S	0931	0943	19	13	4		
	9100	GORK	20 GRF	0932.4	1003.3U	37.6	18.3			
	1420	ARCE	21 GRF	0948.9	1000.1	180				RECORDDISTURBED
	9500	BERL	20	0951	1001	86	12			
	1470	BERL	22	0952	0956	75	9.5			
	536	ONDR	8 S	0953.5	0953.5	.3	75			
	3000	BERL	22	0953.5	1004	86	14			
	1420	ARCE	3 S	0955.5	0955.8	.8				
	536	ONDR	8 S	1022.5	1022.5	.2	46			
	113	POTS	1 S	1039.6	1039.3	.1	140	50		
	408	TRST	42 SER	1047.6	1047.7	.4	45			
	930	BORD	8 S	1057.8	1057.8	.1	14	1		
	3100	CRIM	1 S	1103.5	1105	2	4	1		
	408	TRST	42 SER	1104.4	1104.8	.7	120 D			
	536	ONDR	45 C	1104.5	1104.5	2	286			
	808	ONDR	3 S	1104.5	1104.5	.2	20			
	1420	ARCE	1 S	1104	1104.7	2.4				
	113	POTS	1 S	1141.8	1141.8	.1	150	50		
	113	POTS	45 C	1223.5	1223.6	.1	100	25		
	113	POTS	1 S	1337.8	1337.8	.1	130	40		
	234	POTS	45 C	1354.5	1354.6	.2	200	25		
	9400	HUAN	20 GRF	1400.6	1410.1	35.6	3.8	1		0
	2800	OTTA	23 GRF	1500	1650	255	5.6	2.8		
	606	SGMR	3 S	1856	1901.6	14	89	34.8		2,CONT
	245	SGMR	49 GB	1856	1902.4	14.3	2723.5	1089		2,CONT
	9400	HUAN	41 F	1856.7	1901.5	15.3	38.2	6.8		0
	9400	HUAN		1856.7	1902.3		25.2			0
	1420	BCUL	45 C	1857.5	1901.5	13	147	49		
	2800	OTTA	28 PRE	1857.5		2.8	3.4			
	4995	SGMR	3 S	1858.5	1901.6	10.3	93.1	37.2		2,CONT
	1415	SGMR	3 S	1858.5	1902.4	10.3	173.6	69.4		2,CONT
	410	SGMR	49 GB	1858.6	1902.5	11.7	1177.9	471		2,CONT
	2800	OTTA	45 C	1900.3	1901.5	4.7	66	18.2		
	8800	SGMR	3 S	1900.5	1900.8	6.5	46.6	18.6		2,CONT
	2695	SGMR	3 S	1900.7	1901.7	8	65.3	26.1		2,CONT
	15400	SGMR	3 S	1900.8	1902.4	3.2	20.8	8.3		2,CONT
	4995	BCUL	45 C	1900	1901	8.5	86	29		
	2800	OTTA	30 PBI	1905	1905	6	2.8	1.4		
	2800	OTTA	1 S	1906.5	1908	2.5	6.4	3.2		
	208	VORO	4 S/F	2202.5	2203	.8	750 D			
	245	SGMR	49 GB	2209.6	2209.7	1.1	7416.3	2967		CONT
	410	SGMR	6 S	2209.8	2209.9	.3	95	38		CONT
	200	HIRA	7 C	2210	2210.2	1	20000	5000		0
	700	SYDN	40 F	2210	2210.5	.6				
	100	HIRA	7 C	2210	2210.5	1	13000	4000		SL
	1400	SYDN	3 S	2210.1	2210.5	1.2				
	2800	OTTA	1 S	2210.1	2210.3	2	8.4	2.1		
	1415	SGMR	3 S	2210.3	2210.5	1.9	11.2	4.5		CONT
	606	SGMR	3 S	2210.4	2210.6	.4	67.8	27.1		CONT
	2695	PENT	20 GRF	2320	2355	65	2.6	1.3		
	700	SYDN	8 S	2348	2348	.1				
7	2695	PENT	1 S	0029.5	0030	1	2.4	1.2		
	208	VORO	4 S/F	0049.5	0050	.7	440			
	200	GORK	43 NS	0403 E		537		5		
	260	ONDR	44 NS	0640 E		507 D	168	7		
	1470	BERL	43 NS	0815	0827.5	30	4.6			
	245	SGMR	44 NS	1020 E	2131	720 D	444			CONT,SWF
	410	SGMR	44 NS	1020 E	2130.1	720 D	336.9			2,3,5,
	200	HIRA	44 NS	2020 E	0630	765 D	40	10		MR
	100	HIRA	44 NS	2020 E	0025	765 D	60	20		SR
	208	VORO	44 NS	2200 E		360 D		12		
	2695	ATHN	3 S	0521.2	0521.8	1.4	12.1	3.6		
	1415	ATHN	4 S/F	0521.4	0521.6	3.5	192.2	57.7		
	8800	ATHN	3 S	0521.4	0521.6	.5	18.6	5.6		
	4995	ATHN	3 S	0521.5	0521.7	2.2	10.6	3.2		
	650	GORK	4 SF	0521.5	0521.5	.7	87	30		
	9100	GORK	1 S	0521.6	0521.8	.5	26	13		
	2950	GORK	1 S	0521.6	0521.8	1.7	14	4		
	950	GORK	1 S	0521.6	0521.9	1	15.5	7		

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	5730	IRKU	1 S	0522	0522.2	1	9			R
	202	IZMI	45 C	0621	0621.1	1	1550	550		
	200	HIRA	7 C	0621	0621	1	2000	600		O
	113	POTS	48 C	0621	0639.3	19	3400	90		
	234	POTS	48 C	0621	0639.3	19	15000	40		
	100	HIRA	7 C	0621.2	0621.5	1.5	9000	1000		WL
	228	HARS	S	0638.7	0639	.7	607 D	349 D		
	200	HIRA	7 C	0639	0639.4	1	3000	1000		O
	202	IZMI	8 S	0639	0639.2	.8	3500	980		
	100	HIRA	7 C	0639	0639.5	1	10000	2000		WL
	536	ONDR	4 S/F	0646.3	0647.7	2	42	4		
	9500	BERL	20 S	0656.5	0725	74	4.5			
	202	IZMI	41 F	0705.3	0706.9	3	550			
	113	POTS	48 C	0707.3	0710.2	3.4	35000	1500		
	234	POTS	2	0709.8	0710.1	3.7	140	1		
	1470	BERL	1 S	0709.8	0710	.7	5.2			
	200	HIRA	7 C	0710	0710.5	1.5	1000	500		O
	202	IZMI	4 S/F	0710	0710.4	1	1550	550		
	100	HIRA	7 C	0710	0710.4	1.5	25000	7000		WL
	930	BORD	41 F	0711	0711	1	51	2		
	536	ONDR	2 S/F	0711.5	0711.5	.6	14			
	3000	BERL	20 S	0715 E	0732	30 D	4.9			
	536	ONDR	3 S	0807.6	0807.6	.2	14			
	228	HARS	C	0817.2	0817.7	2.5	917 D	194 D		
	202	IZMI	8 S	0817.6	0817.8	.8	3500	980		
	234	POTS	45 C	0817.7	0817.8	.6	3200	300		
	234	POTS	45 C	0817.7	0817.8	.6	3200	300		
	113	POTS	45 C	0817.8	0817.9	.2	270	40		
	113	POTS	45 C	0817.8	0817.9	.2	270	40		
	930	BORD	8 S	0823.4	0823.5	.2	23	2		
	9500	BERL	20	0825	0827.5	20	6			
	9100	GORK	20 GRF	0826.7	0834.3	10.2	10	3.8		
	3000	BERL	22	0830	0836.2	17	5.6			
	808	ONDR	8 S	0831.2	0831.2	.2	60			
	113	POTS	45 C	0832.5	0832.7	.3	400	50		
	237	TRST	41 F	0858.7	0900.3	3.4	2085			6L
	234	POTS	2	0859.3	0900.3	2.7	650	15		
	930	BORD	41 F	0900	0900.4	.4	12	2		
	113	POTS	2	0900.1	0900.3	.4	13000	1600		
	237	TRST	5 S	0918.5	0918.5	.1	77	25		6L
	113	POTS	1 S	0934.2	0934.2	.1	500	150		
	808	ONDR	2 S/F	1115.3	1115.3	1	21	2		
	2950	GORK	21 GRF	1127	1130.5	25	14	8		
	3100	CRIM	1 S	1130	1132	8	5	2		
	9100	GORK	21 GBF	1138.1	1145.5	13.2	15.5	5.5		
	6100	KISV	29 PBI	1139	1141	12	15			
	10500	BERN	3 S	1139.7	1140.3	11	24.6			
	8800	ATHN	3 S	1139.8	1140.5	10.7	29.7	8.9		
	4995	ATHN	3 S	1140	1140.5	10.4	22	6.6		
	606	SGMR	3 S	1140	1141.1	12.5	46.9	14		
	3100	CRIM	3 S	1140	1140.5	1.5	17	6		
	2695	ATHN	3 S	1140.2	1140.5	10.2	21.4	6.4		
	9100	GORK	1 S	1140.2	1140.4	1.3	19.7	9.5		
	2950	GORK	3 S	1140.2	1140.4	1.6	30	5		
	1415	ATHN	3 S	1140.2	1140.5	10.3	11.2	3.4		
	1415	SGMR	3 S	1140.4	1141	12.1	14.4	4.3		
	2695	SGMR	3 S	1140.5	1141.2	12	23	6.9		
	4995	SGMR	3 S	1140.6	1141.1	12.4	21.2	6.4		
	8800	SGMR	3 S	1140.6	1141	12.4	25.3	7.6		
	1420	ARCE	4 S/F	1140	1140.2	1.4				
	1470	BERL	3 S	1140	1140.3	10	12			
	9500	BERL	3 S	1140	1140.1	10	20			
	930	BORD	41 F	1140	1142.8	4	62	3		
	2800	OTTA	4 S/F	1140	1140.6	1.8	16.6	4.2		
	3000	BERL	3 S	1140	1140.2	5	22			
	1420	ARCE	29 PBI	1141.4		4				
	536	ONDR	42 SER	1141.5	1435.4	205	156			
	408	TRST	7 C	1142.2	1142.3	.2	67			
	808	ONDR	4 S/F	1142.3	1142.3	1	60	4		
	2800	OTTA	20 GRF	1150	1200	80	5.6	2.8		
	113	POTS	2	1249.7	1249.8	.6	850	20		
	606	SGMR	3 S	1334.5	1334.8	.8	30	12		
	410	SGMR	7 S	1334.5	1334.8	.8	406	162		
	237	TRST	41 F	1334.5	1334.5	.5	300			14R
	245	SGMR	6 S	1334.7	1334.8	6.6	174	59.6		
	237	TRST	41 F	1340.3	1340.5	.7	765			27L
	234	POTS	48 C	1431.1	1435.8	28	950	5		
	113	POTS	48 C	1431.2	1435.9	27	2800	65		
	237	TRST	41 F	1434.5	1435.9	1.5	2110			22R
	606	SGMR	3 S	1434.6	1435.3	3.4	343	137		2,3
	410	SGMR	49 GB	1435	1436.4	25	742	297		2,3
	245	SGMR	49 GB	1435	1436.2	25	617	247		2,3
	245	SGMR	49 GB	1435	1445		1462			2,3
	245	SGMR	49 GB	1435	1457.9		390			2,3
	245	SGMR	49 GB	1435	1444.1		1460			2,3

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	410	SGMR	49 GB	1435	1457.9		1120			2,3
	1470	9ERL	4	1435.5	1436	3.5	13			
	3000	9ERL	4	1435.6	1436	3.4	12			
	2695	ATHN	3 S	1435.7	1436.1	4.6	14.3	8.6		
	4995	ATHN	1 S	1435.7	1436.2	1.3	2	1.2		
	1415	ATHN	3 S	1435.7	1436	9.6	16.9	10.1		
	1415	SGMR	3 S	1435.8	1436.8	5.2	17.6	7		2,3
	2800	OTTA	1 S	1435.9	1436	2	9.4	2.8		
	930	BORD	41 F	1435	1436	6	148	2		
	2695	SGMR	1 S	1436	1436.3	.5	8.4	3.4		2,3
	237	TRST	41 F	1443.8	1444.2	.7	1250			28R
	808	OADR	42 SER	1445	1445.7	23	120			
	237	TRST		1452.1	1456		280			13R
	237	TPST		1452.1	1458.2		485			49R
	237	TRST		1452.1	1457.7		558			7L
	237	TRST	42 SER	1452.1	1452.6	6.4	525			0
	237	TRST		1452.1	1453.4		170			48R
	930	BORD	41 F	1457	1457.7	1	25	2		
	237	TRST	5 S	1538.5	1538.5	.1	103	34		0
	237	TRST	5 S	1547.4	1547.5	.1	180	25		13L
	237	TRST		1550.2	1551.3		220			0
	237	TRST	42 SER	1550.2	1550.2	4.3	165			9L
	237	TRST		1550.2	1554.2		2350			16R
	237	TRST		1550.2	1553.9		1880			26R
	237	TRST		1550.2	1552.8		255			9R
	410	SGMR	6 S	1551.5	1554.4	4.7	161	48.3		
	1415	SGMR	3 S	1551.8	1554.3	3.9	14.7	4.4		
	228	HARS	48 C	1552.5	1553.7	2.5	360 D	76 D		
	930	BORD	41 F	1552.7	1552.7	1.7	12	3		
	245	SGMR	48 GB	1553	1554.5	6.9	1890	367		
	606	SGMR	3 S	1554	1554.3	1	103	30.9		
	2800	OTTA	1 S	1554	1554.2	2	4.2	1.4		
	2800	OTTA	20 GRF	1623	1624.5	25	2.8	1.2		
	2800	OTTA	21 GRF	1740		370	9.4	4.7		
	9400	HUAN	20 GRF	1835.7	1841.5	10.5	7.9	2.5		0
	1420	BOUL	1 S	1840.5	1841	3	7	2		
	4995	BOUL	1 S	1840.5	1841	1.5	7	2		
	1415	SGMR	1 S	1841.3	1841.5	4.3	6.8	2.7		CONT
	2695	SGMR	3 S	1841.3	1841.6	1.7	12.7	5.1		CONT
	4995	SGMR	1 S	1841.3	1841.6	3.7	8	3.2		CONT
	410	SGMR	7 S	1841.4	1841.7	.6	376.9	150.7		CONT
	245	SGMR	6 S	1841.4	1841.7	.6	142.1	56.8		CONT
	2800	OTTA	1 S	1841	1841.3	2	6.4	2.8		
	9400	HUAN	21 GRF	1856.4	1919.8	43	9.7	3.3		0
	4995	BOUL	3 S	1916.5	1918	11	15	5		
	8800	SGMR	3 S	1917.2	1917.4	.6	20.4	8.2		CONT
	4995	SGMR	3 S	1917.2	1918.5	4.8	57.6	23		CONT
	2695	SGMR	1 S	1918.1	1918.6	1.9	6.5	2.6		CONT
	9400	HUAN	3 S	1918.1	1918.4	1	12.1	7.6		0
	2800	OTTA	1 S	1918	1918.5	1	7	3.5		
	1415	SGMR	1 S	1929.6	1930.9	4.6	7.6	3		CONT
	8800	SGMR	1 S	1930.3	1930.9	2.7	5.5	2.2		CONT
	245	SGMR	7 S	1930.3	1930.6	2.2	477.3	190.9		CONT
	9400	HUAN	1 S	1930.3	1930.7	.9	9.7	4.8		0
	606	SGMR	3 S	1930.4	1930.8	4.6	123.5	49.4		CONT
	410	SGMR	48 GB	1930.4	1930.6	1.9	2708.6	1083.4		CONT
	15400	SGMR	1 S	1930.5	1930.8	2.5	9.4	3.7		CONT
	2800	OTTA	4 S/F	1930.5	1931.2	2.5	12.6			
	2695	SGMR	1 S	1930.9	1931.1	2.6	5.7	2.3		CONT
	1420	BOUL	45 C	1930	1930.5	2.5	6	2		
	245	SGMR	7 S	1958.5	1959.8	3.2	284	85.2		CONT
	9400	HUAN	4 SF	2012.6	2015.6	3.8	176.4	57.5		L
	15400	SGMR	3 S	2014.7	2015.7	9.3	236.5	94.6		5,CONT,SWF
	4995	BOUL	3 S	2014	2014.5	7	75	25		
	8800	SGMR	3 S	2015	2015.4	10	215	72.4		5,CONT,SWF
	35000	SGMR	3 S	2015	2015.4	.9	75.2	30		5,CONT,SWF
	4995	SGMR	3 S	2015.2	2015.7	9.8	94.4	37.8		5,CONT,SWF
	2695	SGMR	3 S	2015.3	2015.8	9.7	171.6	68.6		5,CONT,SWF
	245	SGMR	49 GB	2015.3	2015.7	24.7	70766.42	3306.6		5,CONT,SWF
	410	SGMR	49 GB	2015.3	2015.6	14.7	2352.5	941		5,CONT,SWF
	1415	SGMR	3 S	2015.3	2015.8	24.7	253.8	101.5		5,CONT,SWF
	606	SGMR	3 S	2015.4	2015.6	10.6	308.1	123.2		5,CONT,SWF
	2800	OTTA	3 S	2015	2016	6	160	40		
	1420	BOUL	2 S	2015	2016.5	22.5	182	61		
	9400	HUAN	31 ABS	2016.4	2026.3	19	-4.8	-2.1		L
	18	MCMA	6 S	2016	2019	5			1	
	2800	OTTA	29 PBI	2021	2021	19	10.4	3.4		
	9400	HUAN	20 GRF	2129.7	2135.8	14.1	8.5	3.3		R
	2800	OTTA	8 S	2130.5	2130.6	.5	5			
	4995	BOUL	2 SF	2133.5	2135.5	4.5	17	6		
	1420	BOUL	40 F	2133.5	2134	2.5	4	1		
	2800	OTTA	2 S/F	2134.5	2136	10	2.8	1.2		
	245	SGMR	48 GB	2224.2	2224.8	1.3	2985	1194		CONT
	410	SGMR	6 S	2224.2	2224.8	1.1	165.6	66.2		CONT
	208	VORO	4 S/F	2224.3	2225	1.2	410			

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APR 1978	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	POLARIZATION OR REMARKS
	2800	OTTA	1 S	2224.5	2225	1	2	1		
8	2695	PENT	20 GRF	0037	0050	30	3.8	1.9		
	700	SYDN	4 S	0121.3	0121.5	.5				
	1400	SYDN	47 GB	0121.5	0121.5	.9				
	606	MANI	47 GB	0122.5	0220.8	95.5	14000	9500		
	2695	MANI	47 GB	0124	0240.8		750			
	2695	MANI	4 S/F	0124	0227.9	81.6	376.7	206.6		
	1415	MANI	47 GB	0124	0153.4	97.9	1650	1500		
	1415	MANI	47 GB	0124	0236.7		6800			
	1415	MANI	47 GB	0124	0207.3		1650			
	4995	MANI	4 S/F	0125	0223.5	79.7	214.7	181.2		
	8800	MANI	4 S/F	0130 E	0226.4	66.70	160.8	145		NT
	200	HIRA	48 C	0130	0220	240	250	100		MR
	500	HIRA	48 C	0131	0220.4	75	19000	500		SR
	500	HIRA		0131	0156.3		450			MR
	500	HIRA		0131	0215.8		2000			SR
	500	HIRA	29 PBI	0131	0303	75	20	8		MR
	208	VORO	27 RF	0145	0208	85	150	75		
	100	HIRA		0150	0234		900			D
	100	HIRA		0150	0310		830			SR
	100	HIRA	48 C	0150	0213	340	1000	300		D
	5730	IRKU	48 C	0200 E	0214	43 D	80			L
	35000	NAGO	20 GRF	0200	0255	180	73			
	5730	IRKU		0200 E	0223		150			L
	5730	IRKU		0200 E	0216		103			L
	5730	IRKU		0200 E	0219.8		122			L
	5730	IRKU		0200 E	0228		154			L
	5730	IRKU	29 PBI	0243		60	41	20		L
	1415	MANI	41 F	0303.6	0309.9	26.3	96.6	84.4		
	1415	MANI	41 F	0338	0533.1	145	29.7	20		NT
	100	GORK	44 NS	0357 E		423		100		
	200	GORK	44 NS	0400 E		420		15		
	202	IZMI	44 NS	0600		360	50			
	260	ONDR	44 NS	0654 E		486 D	165	8		
	127	TORN	44 NS	0720 E	0828.2	450 D	290			V=1
	245	SGMR	44 NS	1018 E	1053.4	775 D	526.6			3,4,CONT
	410	SGMR	44 NS	1018 E	1826	775 D	63.5			3,4,CONT
	808	ONDR	43 NS	1220		160 D	182	42		UNCRTN
	200	HIRA	44 NS	2020 E	0520	765 D	20	5		MR
	208	VORO	44 NS	2200 E		240 D		12		
	650	GORK	46 C	0422.6	0427.9U	11.8	95			
	650	GORK		0422.6	0428.8		95			
	606	MANI	41 F	0426.5	0440.4	48.5	198	160		
	2950	GORK	1 S	0430.5	0431.1	2	13	6		
	100	HIRA	46 C	0440.5	0440.5	1	50000	1000		MR
	500	HIRA	46 C	0440.7	0441	1.3	1400	300		SR
	650	GORK	4 SF	0440.8	0441	1.3	95			
	100	GORK	49 GB	0440.8	0441.1	2.5	157000			
	2950	GORK	1 S	0440.9	0541.1	2.2	13	6		
	950	GORK	48 C	0508.1	0700	183	513			
	950	GORK		0508.1	0733.1		775			
	650	GORK	40 F	0509.2	0511.3	4.1	14.5			
	650	GORK		0509.2	0512.9		12			
	1415	ATHN	45 C	0531.2	0533	8	240	61.3		
	1415	ATHN	45 C	0531.2	0534.6		197			
	2950	GORK	1 S	0621.6	0621.7	1.2	8	4		
	234	POTS	45 C	0631.7	0631.8	.7	210	12		
	1415	MANI	3 S	0652.6	0653.8	3.9	9	5		
	234	POTS	45 C	0658.7	0658.7	.1	100	15		
	930	BORD	46 C	0729 E	0733	43 D	730			
	127	TORN	47 GB	0803.5	0805.8	6.3	3200	330		
	127	TORN		0803.5	0807.5		3700			
	100	GORK		0803.6	0812.9		9990			
	100	GORK	41 F	0803.6	0805 U	9.5	264000			
	228	HARS	48 C	0803 U	0808.5	7	1157 D	46 D		
	15000	KISV	29 PBI	0804	0806	11	38			
	100	HIRA	48 C	0804	0805.8	11	50000	3000		D
	237	TRST	41 F	0804.1	0805.7	1.9	3100			D
	234	POTS	45 C	0804.3	0806	6.5	1700	50		
	113	POTS	45 C	0804.3	0806.6	9	14000	175		
	500	HIRA	46 C	0804.4	0808.6	5.5	55	15		MR
	2695	ATHN	20 GRF	0804.7	0807.3	11.4	25.1	15.1		
	1415	ATHN	40 F	0804.7	0807.3	11.3	138.7	69.4		
	536	ONDR	46 C	0804.8	0807.4	7	75	15		
	3100	CRIM	3 S	0805	0808	10	10	3		
	200	HIRA	46 C	0805	0809	8	1500	200		MR
	808	ONDR	45 C	0805.1	0807.8	5	258	41		
	2695	MANI	4 S/F	0805.1	0807.6	4.1	18.1	12		
	10500	BERN	22 GRF	0805.1	0805.7	9	57			
	3000	BERL	4	0805.2	0807.7	6	13			
	650	GORK	46 C	0805.4	0805.7	5.8	100			

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	650	GORK			0805.4	0807.7		326			
	8800	MANI	3	S	0805.4	0806	1.2	45.6	30.4		
	650	GORK			0805.4	0808.5		90			
	9100	GORK	3	S	0805.4	0805.8	.7	56	20.6		
	9100	GORK	29	PBI	0805.4	0806.1	7.8	18	5.8		
	2950	GORK	3	S	0805.5	0808.1	10	31	8		
	8800	ATHN	3	S	0805.5	0805.7	1.5	19.8	11.9		
	200	GORK	45	C	0805.7	0807.9	6	550			
	200	GORK			0805.7	0809.2		1820			
	9500	BERL	4		0805	0805.5	10	39			
	1470	BERL	4		0805	0808	11	32			
	202	IZMI	46	C	0807	0809	4	1700	400		
	237	TRST	41	F	0808.5	0808.8	.5	1350			0
	113	POTS	48	C	0828	0835.8	10	200	1		
	1420	ARCE	21	GRF	1035	1119.6	72				
	930	BCRO	40	F	1044	1054	27	41	6		
	3100	CRIM	3	S	1048	1051	6	11	4		
	15000	KISV	28	PBI	1049	1050	8	6			
	4995	ATHN	3	S	1049.1	1050.8	7	14	4.2		
	2950	GORK	1	S	1049.9	1050.7	1.1	16			
	10500	BERN	1	S	1050.2	1050.7	1	6			
	8800	ATHN	3	S	1050.3	1050.7	6.9	11.3	3.4		
	2695	ATHN	1	S	1050.3	1050.8	2	4.6	1.4		
	9100	GORK	1	S	1050.5	1050.7	1.1	15.4	7.3		
	408	TRST	42	SER	1051.4	1053.5	2.3	110			
	202	IZMI	41	F	1051.5	1053.5	2	540			
	237	TRST	41	F	1052.3	1053.5	1.2	1420			0
	234	POTS	2		1052.6	1053.7	2.4	525	10		
	15000	KISV	20	GRF	1101	1104	9	3			
	127	TCRN	48	C	1118.7	1119.8	8.7	500			
	127	TORN			1118.7	1124.5		400 D			SATURATION
	2695	SGMR	3	S	1118.8	1121.9	7.5	15.4	6.2		4,SWF
	113	POTS	45	C	1119.7	1124.6	11	21000	150		
	3000	BERL	4		1120.5	1122	9	15			
	2695	ATHN	20	GRF	1120.7	1121.8	17.9	9.3	2.8		
	1420	ARCE	40	F	1120.8	1124.3	12				
	228	HARS	48	C	1121	1124	11	1532 D	12 D		
	1470	BERL	4		1121	1124.5	6.5	22			
	15000	KISV	20	GRF	1121	1125	19	6			
	408	TRST	47	GB	1121	1124	4.2	170 D			
	237	TRST	41	F	1121.1	1124.1	3.9	3750			0
	606	SGMR	47	GB	1121.1	1124.6	4.3	583	175		4,SWF
	202	IZMI	46	C	1121.2	1122.8	4	2400	600		
	245	SGMR	48	GB	1121.2	1124.3	6.6	3910	1170		4,SWF
	10500	BERN	21	GRF	1121.3	1124.4	11	13.5			
	410	SGMR	48	GB	1121.3	1124.3	4.2	2510	753		4,SWF
	234	POTS	45	C	1121.4	1124.5	6.6	6000	100		
	536	ONDR	46	C	1121.4	1124.2	4	182	32		
	1415	SGMR	3	S	1121.4	1124.4	5.6	102	30.6		4,SWF
	4995	SGMR	3	S	1121.4	1121.6	4.9	10.2	4.1		4,SWF
	9500	BERL	20		1121.5	1124.6	14	10			
	1415	ATHN	20	GRF	1121.5	1124.7	13.7	11	3.3		
	8800	SGMR	3	S	1121.9	1124.5	8.3	19.4	5.8		4,SWF
	808	ONDR	46	C	1121	1124.5	7.5	162	15		
	234	POTS	2		1218.8	1218.8	.4	100	1		
	2800	OTTA	20	GRF	1218	1234	72	2.8	1.4		
	113	POTS	2		1249.7	1249.7	1	200	3		
	234	POTS	45	C	1309.3	1309.3	.1	100	25		
	113	POTS	45	C	1348.8	1348.8	.1	175	35		
	2800	OTTA	24	R	1420	1500	40	4	2.8		
	2800	OTTA	27A	PF	1420		330	4	3.5		
	113	POTS	45	C	1500.3	1500.4	.3	280	40		
	2800	OTTA	24P	R	1500		250	4			
	2800	OTTA	20	GRF	1555	1610	65	1.4	.7		
	237	TRST	41	F	1623.4	1623.6	.5	2350			0
	2800	OTTA	20	GRF	1705	1715	35	1.4	.7		
	9400	HUAN	20	GRF	1800.2	1815.8	19.6	12.9	3		L
	2800	OTTA	1	S	1804.5	1805.5	2.5	5	2.5		
	2800	OTTA	23	GRF	1804	1835	65	2.8			
	4995	BCUL	3	S	1804	1805	3.5	15	5		
	9400	HUAN	1	S	1825.4	1827	2.6	7.8	4.8		0
	4995	BCUL	3	S	1825.5	1826	1.5	12	4		
	4995	SGMR	3	S	1826.4	1826.9	3.6	17.6	7		CONT
	2800	OTTA	1	S	1826.5	1827	2	5	1.7		
	2695	SGMR	1	S	1826.7	1827	3.3	5.2	2.1		CONT
	245	SGMR	48	GB	1905	1906.4	5	5200	2080		CONT
	410	SGMR	6	S	1905.6	1905.7	.2	40.5	16.2		CONT
	2800	OTTA	8	S	1906.4	1906.4	.1	2.8			
	2800	OTTA	26	FAL	1910	1950	40	-4	-2		
	2800	OTTA	22	GRF	2015	2046	110	5.2	3		
	500	HIRA	24	R	2048	2053.8	60	30	10		SR
	245	SGMR	48	GB	2051.8	2052.6	3.2	2246	899		CONT
	200	HIRA	7	C	2052	2052.5	1	200	70		HR
	410	SGMR	6	S	2052.2	2052.9	1.9	34.8	13.8		CONT
	100	HIRA	7	C	2052.5	2053	1	4000	1000		HR

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	410	SGMR	6	S	2214.6	2214.8	.4	39.6	15.8		CONT
	245	SGMR	48	GB	2214.8	2214.9	.2	559.2	233.7		CONT
	500	HIRA	27	RF	2218	2236.8	75	20	8		SR
	2695	PENT	21	GRF	2255	2350	150 D	7.8			
	245	SGMR	48	GB	2309.8	2310.7	3.2	594.2	238		CONT
	100	HIRA	46	C	2310	2311	4	480	150		O
	200	HIRA	46	C	2310	2311	3	1500	500		WR
	208	VORO			2310	2312		250			
	208	VORO	46	C	2310	2310.8	2.8	320			
	410	SGMR	6	S	2311	2312.3	1.5	64.4	25.8		CONT
	200	HIRA	7	C	2319	2319.5	1.5	500	150		WR
	208	VORO	4	S/F	2319.2	2320	1.2	320			
	100	HIRA	7	C	2319.3	2320	1	500	100		WR
	2695	PENT	20	GRF	2440	2445	35	2.6			
9	100	HIRA	46	C	0105.3	0105.5	1.5	35000	4000		WR
	208	VORO	46	C	0105.5	0105.9	1.5	550			
	200	HIRA	46	C	0105.5	0106	1.5	4000	1000		WR
	8800	MANI	3	S	0212.7	0214.1	4.2	13.6	9		
	4995	MANI	3	S	0212.7	0214.1	4.3	12.2	8.1		
	200	HIRA	46	C	0314.8	0316	4	250	100		WR
	100	HIRA	46	C	0315	0315.5	2.5	1500	500		WR
	100	GORK	44	NS	0351 E		420		20		
	200	GORK	44	NS	0351 E		429		5		
	127	TORN	44	NS	0710 E	0752.7	410 D	90			V=1
	260	ONDR	44	NS	0720 E		484 D	28	2		
	245	SGMR	44	NS	1016 E	2014.1	778 D	118			CONT,SWF
	410	SGMR	44	NS	1016 E	2255.7	778 D	20.7			3,4,5
	1415	MANI	4	S/F	0443	0448.7	8.7	20.2	13.5		
	2950	GORK			0443.5	0448.9		19			
	2950	GORK	45	C	0443.5	0445	7.5	14			
	200	GORK			0443.9	0448.6		860			
	2695	ATHN	3	S	0443.9	0449	7.4	43.5	26.1		
	200	GORK	45	C	0443.9	0445.3	8.1	59			
	4995	ATHN	3	S	0443.9	0449	7.4	37.2	22.3		
	5730	IRKU	2	S	0443	0449	12	26	8		L
	950	GORK	1	S	0444.1	0448.4	5.4	7.6	3.8		
	100	GORK	47	GB	0444.2	0446.7	3.1	121900			
	2695	MANI	3	S	0444.2	0448.3	6.5	17.5	11.7		
	1415	ATHN	3	S	0444.2	0448.9	7.1	13.2	7.9		
	4995	MANI	20	GRF	0444.3	0449.1	11	40.6	27.1		I
	650	GORK	4	SF	0445	0448.4	13.7	57	12		
	100	HIRA	7	C	0446	0446.8	1	7000	1000		SR
	200	HIRA	7	C	0447	0447.5	1	5000	1000		MR
	9100	GORK	1	S	0448	0449.1	4.8	12.5	3.7		
	606	MANI	8	S	0448.2	0448.3	.2	30.4	20.3		
	5730	IRKU	29	PBI	0456		30	12	5		L
	100	GORK	8	S	0604.5	0604.7	.5	130			
	100	GORK			0614.2	0620.5		130			
	100	GORK			0614.2	0622.3		130			
	100	GORK			0614.2	0627.7		130			
	100	GORK	41	F	0614.2	0614.7	14	130			
	202	IZMI	46	C	0703.5	0704	1.5	550	230		
	100	GORK			0711.2	0753.1		135			
	100	GORK	42	SER	0711.2	0711.4	43	135			
	100	GORK			0711.2	0731.4		135			
	100	GORK			0711.2	0743.9		135			
	237	TRST	41	F	0714.7	0714.9	.5	225			O
	930	BORD	41	F	0731	0731.3	.6	20	2		
	6100	KISV	45	C	0747	0749	8	13			
	200	GORK	8	S	0801.5	0802.4	1.2	190			
	234	POTS	48	C	0801.6	0802.2	12	370	1		
	237	TRST	41	F	0801.6	0802.2	.9	625			5L
	237	TRST	41	F	0812	0812.2	.4	780			O
	202	IZMI	41	F	0812	0812	.5	750			
	10500	BERN	3	S	0844.1	0844.8	2.5	36.5			
	6100	KISV	29	PBI	0845	0847	13	5			
	9500	BERL	3		0846	0846.7	3	28			
	15000	KISV	21	GRF	0846	0846.8	2	33			
	8800	ATHN	3	S	0846.5	0847	3.7	29.3	8.8		
	4995	ATHN	1	S	0846.5	0847	3.6	9.3	2.8		
	9100	GORK	3	S	0846.6	0847	1.5	37.5	15.5		
	930	BORD	8	S	0851.8	0852	.2	16	2		
	237	TRST	41	F	1016.1	1016.7	.9	95			2L
	10500	BERN	46	C	1130.3	1201.9	46	30			
	228	HARS	7	C	1134.2	1134.7	1.7	554	64		
	202	IZMI	5	S	1134.5	1135	.7	2400	750		
	234	POTS	45	C	1134.5	1134.7	.7	500	90		
	237	TRST	41	F	1134.5	1134.7	.7	1580			6L
	245	SGMR	48	GB	1134.6	1134.8	1.6	1131	452		
	410	SGMR	6	S	1134.7	1134.8	.5	14.6	5.8		
	4995	ATHN	4	S/F	1138.8	1202.2	27.6	74	22.2		
	2695	ATHN	3	S	1142.4	1202.6	24.3	35.7	10.7		
	8800	ATHN	3	S	1157	1202.2	8.6	42.4	12.7		
	9400	HUAN	21	GRF	1158.3	1204.7	9	6.5	2.1		O

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	245	SGMR	48 GB	1200	1202	6.5	2670	1070		4,CONT
	228	HARS	48 C	1200	1201	5	978 D	204 D		
	6100	KISV	45 C	1200	1201.5	10	33			
	237	TRST	47 GB	1200.2	1201.9	3.3	3200			78R
	408	TRST	47 GB	1200.2	1200.3	3.8	400 D			
	410	SGMR	48 GB	1200.7	1203.2	2.8	889	356		4,CONT
	234	PCTS	45 C	1200.7	1202.7	5.1	1500	50		
	127	TORN	49 GB	1200.8	1201.1	13.5	2100	240		SERIES
	127	TORN		1200.8	1202 U		1600 D			SATURATION
	113	PCTS	45 C	1200.8	1201.3	5.8	14000	150		
	1415	ATHN	3 S	1200.9	1202.2	3.8	16.3	4.9		
	930	BORD	46 C	1200	1202.7	4	174	6		
	606	SGMR	3 S	1201.1	1203.2	2.6	284	114		4,CONT
	4995	SGMR	3 S	1201.4	1202	1.9	57.1	17.1		4,CONT
	9400	HUAN	3 S	1201.5	1202.4	1.8	29.9	10.9		L
	808	ONDR	46 C	1201.7	1202.8	2.5	192	24		
	2695	SGMR	3 S	1201.9	1202.2	.5	35.3	10.6		4,CONT
	8800	SGMR	3 S	1201.9	1202.9	.7	37.5	11.3		4,CONT
	536	ONDR	46 C	1201	1203	2.5	101	26		
	2800	OTTA	4 S/F	1201	1202.5	3	30	13		
	9500	BERL	4	1201	1202.3	4.2	25			
	3000	BERL	4	1201	1202.5	3	39			
	1470	BERL	4	1201	1202.1	3	13			
	15400	SGMR	3 S	1202	1202.5	1.1	15.4	4.6		4,CONT
	1415	SGMR	3 S	1202.1	1202.2	.3	23.5	7.1		4,CONT
	237	TRST	41 F	1219.4	1219.4	.3	250			4L
	234	PCTS	45 C	1219.5	1219.5	.3	100	10		
	2800	OTTA	240FR	1237	1252	15	2.8	1.4		
	2300	OTTA	1 S	1255	1300	10	1.8	.9		
	237	TRST	41 F	1308.4	1308.8	.6	580			12L
	245	SGMR	7 S	1308.5	1309	1.1	368	147		CONT
	234	PCTS	45 C	1308.6	1309	.5	140	5		
	113	POTS	45 C	1308.9	1309	.1	700	115		
	2800	OTTA	21 GRF	1312	1440	175	8.2	3.8		
	113	POTS	4	1331.9	1333.2	1.3	160	4		
	113	POTS	45 C	1352.7	1352.7	.1	140	35		
	4995	ATHN	20 GRF	1414.3	1437.7	27.6	7.4	2.2		
	2695	ATHN	1 S	1437.3	1440.3	7.5	5.4	1.6		
	2800	OTTA	1 S	1437	1437.5	1	2	1		
	9400	HUAN	3 S	1732.2	1732.8	1.1	15.6	6		R
	2800	OTTA	8 S	1732.6	1732.8	.8	3.8	1.2		
	930	BORD	41 F	1732	1735	2	11	2		
	2800	OTTA	21 GRF	1915	1930	45	2.8	1.2		
	245	SGMR	7 S	1917.1	1920.5	6.6	274	82.2		S,CONT
	410	SGMR	6 S	1917.2	1917.3	3.5	19.8	5.9		S,CONT
	2800	OTTA	1 S	1920.2	1920.7	1.5	3.8	1.9		
	2695	BCUL	1 S	1920.5	1921.5	1.5	5	2		
	1420	BCUL	1 S	1920	1920.5	1	2	1		
	9400	HUAN	21 GRF	2028	2056	39	9.1	4.2		L
	9400	HUAN	1 S	2030.4	2031	1.2	5.2	2.9		0
	245	SGMR	48 GB	2045.4	2045.5	3.4	4510	1350		CONT
	410	SGMR	6 S	2045.5	2045.7	3	138	41.4		CONT
	606	SGMR	3 S	2045.5	2045.6	3	40.6	12.2		CONT
	2800	OTTA	1 S	2052.5	2053.8	6	5.6	1.9		
	4995	BCUL	1 S	2052	2053	2.5	9	3		
	1420	BCUL	2 SF	2052	2053	2	4	1		
	245	SGMR	6 S	2053.1	2053.5	1.1	51.4	15.4		CONT
	410	SGMR	6 S	2053.1	2053.4	1.1	52.4	15.7		CONT
	9400	HUAN	3 S	2053.1	2053.4	1.4	18.2	8.8		0
	2695	BCUL	2 SF	2054	2054.5	1.5	5	2		
	9400	HUAN	4 SF	2145.4	2150.8	8.5	35.2	15.6		0
	2800	OTTA	21 GRF	2145	2240	160	7	3.5		
	4995	BCUL	45 C	2146.5	2150	7	27	9		
	2800	OTTA	3 S	2147	2150.8	8	12.4	3.2		
	2695	BCUL	45 C	2148	2151.5	6.5	13	4		
	1420	BCUL	2 SF	2149.5	2150.5	2.5	3	1		
	35000	NAGO	20 GRF	2153	2158	19	18			
	208	VORO	42 SER	2246	2248.7	3	220			
	245	SGMR	7 S	2247.9	2250.3	4.3	459	138		
	606	SGMR	3 S	2250.2	2250.3	2.4	115	34.5		
	410	SGMR	48 GB	2250.2	2250.3	2.1	515	155		
	208	VORO	41 F	2253.5	2254	1.8	160			
	100	HIRA	7 C	2254.8	2256	2.5	900	200		WL
	200	HIRA	41 F	2255	2255	2	250			0
10	100	HIRA	46 C	0219.5	0221	3	2000	500		0
	200	HIRA	46 C	0222	0223	3	800	100		0
	500	HIRA	46 C	0245.6	0253.1	11	28	6		MR
	200	HIRA	46 C	0247	0249	10	30	8		0
	700	SYDN	46 F	0302	0302.5	.7				
	100	HIRA	46 C	0447	0447.8	2	9000	2000		0
	200	HIRA	46 C	0447	0447	3	600	100		MR
	100	GORK		0447.2	0452.1		180			
	100	GORK	41 F	0447.2	0448 U	6.2	180			
	200	GORK	2 SF	0447.4	0448 U	2.9	68			

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	2950	GORK	1 S	0447.6	0448.1	.9	13	6		
	700	SYDN	1 S	0448.8	0449.1	.2				
	700	SYDN	8 S	0450.9	0450.9	.1				
	4995	ATHN	3 S	0523	0530	14.6	34.8	10.4		
	8800	ATHN	4 S/F	0523.3	0530.2	14.3	87.9	26.4		
	5730	IRKU	2 S	0529.5	0530.7	5	40	17		R
	200	GORK	2 SF	0551.3	0551.8	1.1	53			
	100	GORK	46 C	0551.4	0551.6	1.1	180			
	100	GORK		0551.4	0552.3		170			
	260	ONDR	44 NS	0630 E		516 D	54	6		
	127	TORN	43 NS	0821 U	0852.2	105 U	100			V=1
	410	SGMR	44 NS	1015 E	2048.2	780 D	32			3.5,CONT
	245	SGMR	44 NS	1015 E	1608.4	780 D	142			3.5,CONT
	6100	KISV	8 S	0747	0748	3	1			
	6100	KISV	8 S	0800	0801	5	3			
	237	TRST	41 F	0822.5	0822.6	.3	145			10L
	3100	CRIM	25 R	0945	1128		6			
	9500	BERL	6 S	0945	1003	28	2.9			
	6100	KISV	21 GRF	0946	0947	4	2			
	6100	KISV	21 GRF	1008	1013	12	3			
	408	TRST	7 C	1046.7	1047	.7	140 D			
	2695	SGMR	3 S	1047	1055.5	11.7	199.4	79.7		SWF
	4995	SGMR	3 S	1048	1055.7	10.6	199.5	79.8		SWF
	10500	BERN	4 S/F	1050.6	1055.3	25	653			
	4995	ATHN	4 S/F	1052.2	1055.6	29.8	313.5	94.1		
	3000	BERL	4	1052.5	1054.5	7.5				
	6100	KISV	29 PBI	1053	1055	17	27			
	35000	SGMR	3 S	1053	1056.2	5.8	228.6	91.4		SWF
	9500	BERL	4	1053.5	1055	16	905			
	1470	BERL	3 S	1053.5	1055.5	6.5	70			
	808	ONDR	45 C	1053.6	1055	6.5	52	17		
	2695	ATHN	4 S/F	1053.9	1055.5	12.8	264.1	79.2		
	113	POTS	45 C	1053	1101.5	132	280			
	3100	CRIM	3 S	1054	1056	6	157	52		
	408	TRST	47 GB	1054.1	1056.5	5.3	230			
	1415	SGMR	3 S	1054.2	1055.7	4.7	79.5	31.8		SWF
	8800	ATHN	47 GB	1054.2	1055.7	18.9	816	244.8		
	1415	ATHN	4 S/F	1054.3	1055.8	13.8	74	22.2		
	606	SGMR	47 GB	1054.3	1055.8	4.5	2707	1083		SWF
	15400	SGMR	47 GB	1054.4	1055.6	4.5	643.7	257.5		SWF
	8800	SGMR	47 GB	1054.8	1056	4.7	514.8	205.9		SWF
	127	TORN	49 GB	1054	1056.2D	13.5	510 D	140		SATURATION
	10700	OWIN	45 C	1054		6	210 D			
	930	BORC	46 C	1054	1055	7	252	30		
	536	ONDR	45 C	1054	1055.1	6	422	43		
	127	TORN		1054	1101.5		480			
	2650	OWIN	45 C	1054		6	130 D			
	245	SGMR	47 GB	1055.3	1057	3.7	3450	1380		SWF
	202	IZMI	47 GB	1055.3	1158.2	4.8	3250	1000		
	410	SGMR	47 GB	1055.3	1056.5	3.7	7826	3131		SWF
	237	TRST	47 GB	1055.3	1055.3	3.4	4170			19L
	234	POTS	45 C	1055	1057.5	85	1700			
	260	ONDR	46 C	1055		6	226	108		
	228	HARS	48 C	1057.5	1059.5	10	980 D	143 D		
	127	TORN	45 C	1119.3	1120.5	3	38	6.2		
	3100	CRIM	3 S	1133	1136.5	10	10	3		
	2800	OTTA	1 S	1133	1137	7	8.2	4.1		
	4995	ATHN	1 S	1134	1136.1	9.4	3.8	2.3		
	2695	ATHN	20 GRF	1134	1137.3	10.3	8.3	5		
	127	TORN	27 RF	1135 U	1145.6	45 U	110	30		
	2800	OTTA	29 PBI	1140	1140	12	2.8	1.4		
	237	TRST	41 F	1218.1	1218.3	.5	150			9L
	1420	ARCE	1 S	1338	1338.1	.4				
	245	SGMR	6 S	1457.8	1458.7	1.4	109.6	43.8		CONT
	237	TRST	41 F	1457.9	1458.6	1	120			12L
	410	SGMR	6 S	1458	1458.2	.5	24	9.6		CONT
	2800	OTTA	21 GRF	1512	1522	25	1.4	.7		
	4995	BCUL	3 S	1516.5	1518	2.5	13	3		
	4995	SGMR	3 S	1517.1	1518.3	2.6	12.6	5		3G,CONT
	2695	SGMR	1 S	1517.2	1518.3	2.8	4.2	1.7		3G,CONT
	4995	ATHN	3 S	1517.2	1519.2	9	11.4	6.8		
	2800	OTTA	1 S	1517.3	1519	3.8	4.4	2.2		
	1420	ARCE	2 S/F	1517.5	1518.6	2.8				
	1420	BCUL	2 SF	1517	1518	2	4	1		
	2695	ATHN	20 GRF	1518	1519.1	12.5	8.3	5		
	1415	SGMR	1 S	1518	1518.1	2	2.3	.9		3G,CONT
	2800	OTTA	26 FAL	1550	1620	30	-2	-1		
	245	SGMR	6 S	1559.9	1616.5	17.2	172.6	51.8		CONT
	237	TRST	42 SER	1608.2	1608.3	8.8	195			11L
	237	TRST		1608.2	1616.5		108			12L
	237	TRST		1608.2	1610.3		115			11L
	8800	SGMR	1 S	1609.1	1610.4	6.2	8.3	3.3		CONT
	4995	SGMR	1 S	1609.7	1610.4	2.8	6.7	2.7		CONT
	2800	OTTA	21 GRF	1625	1842	165	2.8	1.4		
	18	MCMA	6 S	1629	1630	2			1	

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	930	BORD	41 F	1647	1649.7	3	151	2		
	930	BORD	41 F	1712	1712.8	1	35	2		
	9400	HUAN	21 GRF	1732.4	1735	15.4	4.5	1.4		R
	4995	BCUL	3 S	1737.5	1738.5	3	17	6		
	4995	SGMR	3 S	1738.3	1739.2	2.3	26.7	10.7		CONT
	8800	SGMR	3 S	1738.4	1739.2	2.2	58.8	23.5		CONT
	2800	OTTA	4 S/F	1738.5	1739.3	1.5	28	4.6		
	1420	BCUL	1 S	1738.5	1739	4.5	2	1		
	15400	SGMR	3 S	1738.6	1739.2	2.6	53.1	21.3		CONT
	2695	SGMR	3 S	1739.1	1739.5	.8	21.6	8.6		CONT
	245	SGMR	48 GB	1827.2	1827.4	.4	1000	300		S,CONT
	410	SGMR	6 S	1827.4	1827.5	.3	135	40.5		S,CONT
	9400	HUAN	3 S	1838.4	1739	2.6	63	24.3		0
	2800	OTTA	1 S	1951.5	1952	1.5	1.2	.6		
	245	SGMR	6 S	1955.6	1956.9	1.6	140	42		3G,CONT
	410	SGMR	6 S	1956.6	1956.9	.6	34.2	10.3		3G,CONT
	606	SGMR	3 S	1956.6	1956.9	.4	36.3	10.9		3G,CONT
	245	SGMR	7 S	2030.4	2030.6	1	475	143		CONT
	9400	HUAN	3 S	2101.1	2101.4	1.1	24.4	8		R
	245	SGMR	48 GB	2101.3	2101.5	.5	2880	864		S,CONT
	1415	SGMR	3 S	2101.3	2101.5	1.6	11.3	3.4		S,CONT
	606	SGMR	3 S	2101.4	2101.5	.4	109	32.7		S,CONT
	410	SGMR	6 S	2101.4	2101.5	.5	224	67.2		S,CONT
	2800	OTTA	1 S	2101	2101.3	2	8.8	2.2		
	2800	OTTA	21 GRF	2123	2133	37	2.6	1.3		
	2800	OTTA	1 S	2140.5	2141	2.5	3.8	2		
	1415	SGMR	6 S	2140.6	2141	2.6	4.4	1.8		CONT
	606	SGMR	6 S	2140.7	2140.8	.8	111	33.3		CONT
11	8800	MANI	3 S	0055	0055.8	3.4	94.8	63.2		
	4995	MANI	3 S	0055.1	0056	5.1	32.8	21.8		
	700	SYDN	45 C	0055.3	0055.6	5				
	1400	SYDN	45 C	0055.3	0055.6	5				
	2695	MANI	4 S/F	0055.3	0055.9	2.2	54.3	36.2		
	1415	MANI	4 S/F	0055.3	0055.8	2.9	55.6	37.1		
	606	MANI	8 S	0055.5	0056	.7	235.2	156.8		
	2695	PENT	4 S/F	0055	0056	5	58	15.4		
	700	SYDN	8 S	0351.3	0351.5	.5				
	200	CORK	44 NS	0400 E		534		5		
	100	GORK	43 NS	0444.7		449		10		
	260	ONDR	44 NS	0646 E		574 D	37	4		
	127	TORN	44 NS	0700 E	0952.2	478 D	68			V=1
	410	SGMR	44 NS	1013 E	1228.9	783 D	17.9			CONT
	245	SGMR	44 NS	1013 E	1138.2	783 D	30.6			CONT
	100	GORK	43 NS	1122		38		5		
	700	SYDN	8 S	0455.8	0455.9	.3				
	700	SYDN	40 F	0530.8	0535.2	9.2				
	4995	ATHN	4 S/F	0533.8	0537.5	9.4	79.6	23.9		
	8800	ATHN	3 S	0536.3	0537.5	4.3	12.1	3.6		
	2695	ATHN	4 S/F	0536.4	0537.5	3.8	57.3	17.2		
	2695	MANI	3 S	0536.8	0537.2	3.4	64.4	42.9		
	606	MANI	3 S	0536.8	0536.9	2.5	47.5	31.7		
	2950	GORK	4 S/F	0536.8	0537.2	2.6	103	50		
	950	GORK	1 S	0536.9	0537.3	2.7	5			
	1400	SYDN	4 S	0537	0537.4	2.2				
	650	GORK	41 F	0537	0537.2	2.5	8			
	4995	MANI	3 S	0537	0537.3	5.5	44.8	29.9		
	1415	MANI	3 S	0537	0537.2	2	9.4	6.2		
	1415	ATHN	1 S	0537.1	0537.5	3.2	7.9	2.4		
	8800	MANI	3 S	0537.2	0537.3	1.2	24.8	16.6		
	650	GORK		0537.3	0539.3		78			
	5730	IRKU	2 S	0537	0537.3	4	42	9		L
	113	POTS	45 C	0604.2	0605.7	6	850	200		
	228	HARS	7 C	0604.5	0605	1.7	523	120		
	234	POTS	45 C	0604.7	0605.8	2.5	525	60		
	200	HIRA	46 C	0605	0605.5	2	800	200		WL
	100	GORK		0605 U	0606		55400			
	100	HIRA	46 C	0605	0606	3	2500	1000		0
	202	IZMI	4 S/F	0605	0606	1.5	650	230		
	100	GORK	47 GB	0605 U	0605.5U	1.8	260			
	2950	GORK	1 S	0605.1	0605.8	2.2				
	650	GORK	4 SF	0605.1	0605.8	4.8				
	950	GORK	4 S/F	0605.1	0605.7	2.2				
	3100	CRIM	1 S	0605.5	0606	1	5	2		
	9500	BERL	1 S	0705	0705.8	3	3.5			
	9500	BERL	6 S	0743	0743.5	30	5.7			
	3000	BERL	6 S	0750.5	0755	12	8.8			
	1470	BERL	6 S	0750	0758	25	1.8			
	202	IZMI	41 F	0921	0921	1	500			
	9500	BERL	1 S	0929.1	0929.8	.9	2.8			
	1470	BERL	1 S	0929.8	0929.9	.2	1.8			
	3000	BERL	1 S	0929	0929.8	1	1.6			
	1420	ARCE	21 GRF	0953	1101.6	128				
	3000	BERL	1 S	1019	1020.5	3	6.4			
	808	ONDR	8 S	1023.3	1023.3	.2	42			

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	202	IZMI	24 R	1045	1057.8	30	73	32		
	2695	SGMR	3 S	1052	1056.7	8.5	34.5	13.8		
	127	TORN	27 RF	1052.4	1056 U	60 U	20	8		
	4995	ATHN	3 S	1052.8	1056.8	7.6	49.8	14.9		
	3100	CRIM	3 S	1053	1057	6	51	17		
	3000	BERL	4	1053.5	1056.6	7.5	40			
	2695	ATHN	3 S	1053.8	1056.8	10.5	41.4	12.4		
	9500	BERL	6 S	1054.5	1124	53	7.4			
	1470	BERL	4	1054.5	1056.6	5.5	11			
	4995	SGMR	3 S	1054.5	1056.5	5.4	34.8	13.9		
	1415	ATHN	3 S	1054.7	1056.8	9.1	10.2	3.1		
	1420	ARCE	3 S	1054	1056.4	6.4				
	9100	GORK	1 S	1055.4	1056.9	6.6	11	4.5		
	8800	ATHN	3 S	1055.5	1056.7	3.5	12.6	3.8		
	113	POTS	45 C	1112	1112.3	.2	300	13		
	4995	SGMR	3 S	1152	1159.1	10.3	17.4	6.1		
	8800	SGMR	3 S	1152.3	1158.1	10	16.3	3.5		
	2695	SGMR	3 S	1154.4	1159.1	7.9	40.5	14.2		
	2695	ATHN	3 S	1154.5	1159.2	16.9	35.9	10.8		
	3100	CRIM	3 S	1155	1159	5.5	44	15		
	3100	CRIM	29 PBI	1155	1200.5	20	19			
	1420	ARCE	22 GRF	1155.6	1158.5	9				
	4995	ATHN	3 S	1155.9	1159.1	14.4	17.9	5.4		
	1415	ATHN	20 GRF	1155.9	1159	11.5	5.1	1.5		
	1470	BERL	4	1155	1159	16	6.1			
	2800	OTTA	4 S/F	1155	1159	10	34	11.2		
	9500	BERL	6 S	1155	1200	15	4.3			
	3000	BERL	4	1155	1158.8	28	43			
	2950	GORK	4 SF	1156	1158.9	8.7	39			
	2800	OTTA	29 PBI	1205	1205	17	11.4	5		
	113	POTS	1 S	1229.5	1229.5	.1	300	100		
	2800	OTTA	28 PRE	1334	1342	8	3.6	1.8		
	2695	SGMR	47 GB	1336.8	1344.3	117.7	222	544		SWF
	2695	SGMR	47 GB	1336.8	1351.8		317			2,4,CONT,
	2695	SGMR	47 GB	1336.8	1407.5		1360			SWF
	2695	SGMR	47 GB	1336.8	1457.5		118			SWF
	2695	SGMR	47 GB	1336.8	1516.7		152			2,4,CONT,
	2695	SGMR	47 GB	1336.8	1421.7		570			2,4,CONT,
	9400	HUAN		1338.4	1354.4		760.8			
	9400	HUAN	47 GB	1338.4	1344.6	54.3	310.7	367.4		LOROL
	9400	HUAN		1338.4	1421.4		602.3			
	9400	HUAN		1338.4	1407.5		1052.4			
	9400	HUAN		1338.4	1405		596			
	15400	SGMR	47 GB	1340.5	1354.5		859			2,4,CONT,
	15400	SGMR	47 GB	1340.5	1407.7		1110			SWF
	15400	SGMR	47 GB	1340.5	1421.7		395			2,4,CONT,
	15400	SGMR	47 GB	1340.5	1344.8	119.1	233	444		SWF
	4995	SGMR	47 GB	1340.8	1344.4	122.2	512	852		SWF
	4995	SGMR	47 GB	1340.8	1356.8		555			2,4,CONT,
	4995	SGMR	47 GB	1340.8	1407.3		2130			SWF
	4995	SGMR	47 GB	1340.8	1421.7		971			2,4,CONT,
	35000	SGMR	47 GB	1341	1407.7		226			2,4,CONT,
	35000	SGMR	47 GB	1341	1354.3		825			SWF
	35000	SGMR	47 GB	1341	1344.7	118.6	249	330		2,4,CONT,
	10500	BERN		1341	1407.2		244			
	10500	BERN	46 C	1341	1344.5	170	245			
	10500	BERN		1341	1411.5		439			
	10500	BERN		1341	1354.3		622			
	4995	BCUL	49 GB	1341.5	1407.5	138.5	1636	545		
	1420	ARCE	28 PRE	1341.8	1351.2	17.2				INT AT 9100 MHZ
	8800	SGMR	47 GB	1342	1344.5	120	330	484		SWF
	4995	ATHN	47 GB	1342	1407.7	144.4	2009	602.7		
	8800	SGMR	47 GB	1342	1407.8		1210			SWF
	8800	SGMR	47 GB	1342	1421.8		597			2,4,CONT,
	8800	SGMR	47 GB	1342	1354.3		675			2,4,CONT,
	1415	SGMR	47 GB	1342.3	1400.4		308			2,4,CONT,
	1415	SGMR	47 GB	1342.3	1408		532			SWF
	1415	SGMR	47 GB	1342.3	1518.4		1020			2,4,CONT,
	1415	SGMR	47 GB	1342.3	1421.9		758			2,4,CONT,
	1415	SGMR	47 GB	1342.3	1457.6		492			SWF
	1415	SGMR	47 GB	1342.3	1351.5	112	204	408		SWF
	1415	ATHN	47 GB	1342.5	1424.2	169.9	686.5	321.6		
	1415	ATHN	47 GB	1342.5	1549.7		1042			
	1415	ATHN	47 GB	1342.5	1613.2		821.5			
	1415	ATHN	47 GB	1342.5	1518.7		871.5			
	1415	ATHN	47 GB	1342.5	1516.7		617.5			
	9500	EERL	49 GB	1342.5	1407.4	153 D	1050			
	1470	BERL	49 GB	1342.5	1421.5	128 D	1400			
	10700	CWIN	49 GB	1342		80	200 D			
	3000	BERL	49 GB	1342	1421.5	128 D	2020			
	2800	OTTA	47 GB	1342	1421	78	2878	502		
	2650	OWIN	49 GB	1342		160 D	130 D			
	8800	ATHN	47 GB	1343	1407.7	136.8	1317.8	395.3		
	2695	BCUL	49 GB	1343	1421.5	227	4200	1400		
	1420	KIEL	47 GB	1343	1559	137 D	900	200		

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APR 1978	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	POLARIZATION OR REMARKS
	2695	ATHN	47 GB	1344.6	1407.7	164.2	5329.7	1598.9		
	930	BORO	46 C	1346	1518	254 D	729			
	800	KIEL	47 GB	1347	1401	133 D	4600	160		
	1420	BOUL	49 GB	1347	1549	413	584	195		
	606	SGMR	47 GB	1348.8	1351.5	105.2	1660	664		SWF
	606	SGMR	47 GB	1348.8	1359.8		879			2,4,CONT,
	606	SGMR	47 GB	1348.8	1409.9		552			2,4,CONT,
	606	SGMR	47 GB	1348.8	1406.9		552			SWF
	808	ONDR		1348	1405		485			
	602	KIEL	47 GB	1348	1351	132 D	1500	120		
	808	ONDR		1348	1430		303			
	808	ONDR		1348	1457.8		313			
	808	ONDR		1348	1517.8		475			
	808	ONDR	49 GB	1348		132	596	235		
	410	SGMR	49 GB	1350.7	1353.9	100.3	580	1260		SWF
	410	SGMR	49 GB	1350.7	1405.2		3780			2,4,CONT,
	536	ONDR	49 GB	1350		130	429	72		
	536	ONDR		1350	1402		292			
	536	ONDR		1350	1410.8		221			
	240	KIEL	47 GB	1350	1411	130 D	290	50		
	405	KIEL	47 GB	1350	1404	130 D	4000	100		
	536	ONDR		1350	1351.7		396			
	245	SGMR	49 GB	1351.3	1354.2	98.1	114	311		SWF
	245	SGMR	49 GB	1351.3	1405		770			2,4,CONT,
	245	SGMR	49 GB	1351.3	1411		463			SWF
	228	HARS	RF	1351.5	1410 U	152	361 D	27		
	260	ONDR	49 GB	1351.5	1405	128	219	60		
	260	ONDR		1351.5	1411.2		199			
	237	TRST	47 GB	1351.6	1411	165.5D	560			0
	234	POTS	45 C	1351	1411	153 D	120			
	127	TORN	46 C	1351	1401.5	20	100			PEAKING
	113	POTS	45 C	1351	1406	166 D	100			
	1420	ARCE		1359	1407.4	13.2				
	1420	ARCE	46 C/F	1359	1421.5	37.4				
	18	MCMA	41 F	1403	1414	45			3	
	1420	ARCE		1412.2	1414.5	5.6				
	1420	ARCE		1417.8	1421.5	18.6				
	9400	HUAN	30 PBI	1432.7	1432.7	86	163.4	102.4		L
	1420	ARCE	30 PBI	1436.4	1442.8	120				
	127	TORN	47 GB	1438.7	1441.7	5.4	20000 U			SUNSET
	9400	HUAN	3 S	1440.9	1441.5	1.3	19	7.9		0
	1420	ARCE	4 S/F	1455.6	1457.3	5.4				
	2800	OTTA	30 PBI	1500	1500	470	57	18.4		
	1420	ARCE		1502.9	1511.1	9.7				
	1420	ARCE	46 C/F	1502.9	1518.3	25				
	2800	OTTA	40 F	1504	1548	156	111			
	1420	ARCE		1512.6	1516.3	4.2				
	1420	ARCE		1516.8	1518.3	11.1				
	1420	ARCE	28 PRE	1538.2	1541.6	6.7				
	245	SGMR	6 S	1539	1543.4	52.7	21.6	8.6		CONT
	1415	SGMR	47 GB	1539.4	1558.3		75.2			CONT
	1415	SGMR	47 GB	1539.4	1613		744.8			CONT
	1415	SGMR	47 GB	1539.4	1549.4		998			CONT
	1415	SGMR	47 GB	1539.4	1541.7	59	107.1	399		CONT
	410	SGMR	6 S	1539.7	1550	82.3	22.1	8.8		CONT
	606	SGMR	45 C	1539.8	1541.4	100.2	28.4	25.9		CONT
	606	SGMR	45 C	1539.8	1548.5		64.7			CONT
	606	SGMR	45 C	1539.8	1613.5		33.8			CONT
	2695	SGMR	45 C	1540.2	1548.1		125			CONT
	2695	SGMR	45 C	1540.2	1541.6	59.7	52.5	50		CONT
	1420	ARCE	4 S/F	1544.9	1549.3	6.1				
	4995	SGMR	20 GRF	1545.5	1548	53.5	11.2	4.5		CONT
	1420	ARCE	30 PBI	1551		30				
	1420	ARCE	3 S	1556.7	1558	2.5				
	1420	ARCE		1611.6	1612.6	1.5				
	1420	ARCE	45 C	1611.6	1612.6	5.5				
	1420	ARCE		1613.1	1613.7	4				
	1420	ARCE	40 F	1625.7	1628.4	10				AT SUNSET
	1415	SGMR	45 C	1641.3	1700.7	108.3	105	198		CONT
	1415	SGMR	45 C	1641.3	1755.4		319			CONT
	1415	SGMR	45 C	1641.3	1735.3		183			CONT
	1415	SGMR	45 C	1641.3	1806		242			CONT
	1415	SGMR	45 C	1641.3	1725.3		158			CONT
	606	SGMR	45 C	1642.5	1735.4		16.2			CONT
	606	SGMR	45 C	1642.5	1701.5	81.9	31	12.4		CONT
	2695	SGMR	45 C	1642.8	1706.5	81.8	40.7	19.8		CONT
	2695	SGMR	45 C	1642.8	1733.6		49.6			CONT
	410	SGMR	6 S	1658.7	1735		14.3			CONT
	410	SGMR	6 S	1658.7	1701.5	65.7	9.2	5.7		CONT
	1415	SGMR	47 GB	1829.6	1851.7	40.9	785	314		CONT
	2800	OTTA	45 C	1848.2	1850.5	12	22	8.8		
	2695	SGMR	20 GRF	1848.9	1856.3	11.7	32.4	13		CONT
	606	SGMR	3 S	1907.5	1913	6	31	12.4		3G,CONT
	9400	HUAN	3 S	1910.5	1911.8	3.2	14	5.6		L
	1415	SGMR	3 S	1911	1918.5	13.2	113	45.2		3G,CONT

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	8800	SGMR	3 S	1911.1	1911.6	3.7	17.9	7.2		3G,CONT
	4995	SGMR	1 S	1911.1	1911.9	3.1	4.6	1.8		3G,CONT
	245	SGMR	48 GB	1911.3	1912.3	4.8	595	238		3G,CONT
	2695	SGMR	3 S	1911.5	1917.3	9.6	10.7	4.3		3G,CONT
	2800	OTTA	1 S	1911.5	1912	1	4.6	2.3		
	410	SGMR	6 S	1911.8	1912	2.2	235	70.5		3G,CONT
	2800	OTTA	1A S	1915.5	1917.5	4	3.4	2.3		
	2800	OTTA	1 S	1916.6	1917.4	1	6.4	2.2		
	1415	SGMR	3 S	1933.3	1938.8	15.6	205	61.5		
	2695	SGMR	20 GRF	1937.4	1939.6	12	10.5	3.2		
	2800	OTTA	45 C	1937.5	1939	5	5.6	2.8		
	1415	SGMR	20 GRF	2005.2	2035.4	34.6	56.5	22.6		5
	2695	SGMR	20 GRF	2016.5	2035.1	23.6	23	9.2		5
	2800	OTTA	3 S	2024	2026	2.5	11.6	5.8		
	2695	PENT	4 S/F	2033	2035.2	5	21.6	7.2		
	1415	SGMR	20 GRF	2057.2	2058.1	32.1	5.2	2.1		3G
	2800	OTTA	1 S	2057.3	2057.5	1	2.2	1		
	9400	HUAN	8 S	2057.3	2057.5	.7	41.8	16.6		L
	15400	SGMR	20 GRF	2057.4	2057.8	31.7	6.9	2.8		3G
	606	SGMR	20 GRF	2057.4	2057.7	31	13.5	5.4		3G
	245	SGMR	7 C	2057.5	2057.8	30.6	279	112		3G
	245	SGMR	7 C	2057.5	2124.4		232			3G
	245	SGMR	7 C	2057.5	2105.5		119.1			3G
	410	SGMR	6 S	2057.8	2058.2	30.7	119	47.6		3G
	2800	OTTA	1 S	2105	2105.5	1	3.4	1.1		
	2800	OTTA	45 C	2119.5	2121.5	5	11.4	3.8		
	9400	HUAN	4 SF	2119.5	2121.3	3	48.2	17.4		L
	410	SGMR	6 S	2153	2153.7	5	15.8	6.3		5
	245	SGMR	48 GB	2153.3	2153.6	7.8	854	342		5
	2695	PENT	21 GRF	2300	2310	65	4	2.4		
	2695	PENT	40 F	2304	2306.1	3.5	7.6			
	2695	PENT	1 S	2321	2322	2	3.8	1.9		
	500	HIRA	6 S	2343.8	2344	.6	75	30		0
	200	HIRA	7 C	2344	2344.2	.7	300	100		0
	100	HIRA	7 C	2344.2	2344.5	.5	900	600		0
	1400	SYDN	2 F	2344.8	2345	.3				
	2695	PENT	2 S/F	2344	2344.1	1	6.4	4.8		
12	5730	IRKU	2 S	0218.3	0223.8	20	80	9		L
	700	SYDN	40 F	0221	0223.8	7.9				
	1400	SYDN	2 S	0223.1	0223.7	.9				
	1400	SYDN	29 PBI	0224	0224	2				
	650	GORK		0359 E	0427		14.5			
	650	GORK		0359 E	0434.1		9			
	650	GORK	41 F	0359 E	0401	93.6	19			
	700	SYDN	40 F	0400.2	0402	2.3				
	100	GORK	8 S	0427.4	0427.6	.5	200			
	100	GORK	8 S	0436.7	0437 U	.6	200			
	2695	ATHN	45 C	0451.9	0456.1	17	9	2.7		
	2695	ATHN	45 C	0451.9	0506.5		9			
	4995	ATHN	3 S	0454.7	0456.1	18.9	18.6	5.6		
	8800	ATHN	20 GRF	0454.8	0500.1	13.7	12.4	7.4		
	5730	IRKU	1 S	0455.7	0456	2	8	3		R
	4995	MANI	1 S	0455.8	0456.3	.9	10.3	6.8		
	1415	MANI	1 S	0455.9	0456.2	.6	3.3	2.2		
	2695	MANI	1 S	0455.9	0456.2	.5	6.5	4.2		
	221	ABST	44 NS	0500	0931	240	31			
	260	ONDR	44 NS	0640 E		190	182	4		
	127	TORN	44 NS	0700 E	0759.2	470 D	130			V=0
	245	SGMR	43 NS	1309.6	1754.3	607.4D	17.2			3S
	410	SGMR	43 NS	1309.6	1754.4	607.4D	16.2			3S
	700	SYDN	4 S	0505.8	0507.2	2.4				
	1415	ATHN	3 S	0505.9	0506.6	2.1	19.7	5.9		
	1400	SYDN	4 S	0505.9	0506.4	.8				
	650	GORK	1 S	0506	0507.4	2.4	6.2	3		
	950	GORK	2 S/F	0506	0506.8	2.3	8.5	4.2		
	1415	MANI	4 S/F	0506	0506.5	2	68	45.4		
	606	MANI	4 S/F	0506	0506.4	2.1	50.4	33.6		
	2950	GORK	1 S	0506.1	0506.7	2	12	6		
	200	GORK	7 C	0506.4	0506.4	1.3	6	3		
	2695	MANI	4 S/F	0506.4	0506.5	1.1	37.3	24.8		I
	1400	SYDN	29 PBI	0506.7	0506.9	2				
	100	GORK	8 S	0507.4	0507.6	.5	200			
	100	GORK	8 S	0530.8	0530.9	.5	200			
	2695	ATHN	20 GRF	0539.7	0551.4	25.6	9	5.4		
	1415	ATHN	20 GRF	0542.2	0548.6	19.4	8.5	5.1		
	4995	ATHN	20 GRF	0543.8	0556	21.4	8.3	5		
	100	GORK	45 C	0546.3	0546.4	.9	200			
	100	GORK		0546.3	0546.7		200			
	200	GORK	8 S	0546.3	0546.7	1.1	52			
	650	GORK	20 GRF	0616.2	0624.8	24.8	8	4		
	6100	KISV	42 SER	0627	0647	26	54			
	5730	IRKU		0635.5	0650.2		25			L
	5730	IRKU	47 C	0635.5	0637	16	9			L
	5730	IRKU		0635.5	0643.5		67	20		L

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	5730	IRKU		0635.5	0647		64			L
	4995	ATHN	45 C	0635.7	0643.7	49.2	68.3	20.5		
	4995	ATHN	45 C	0635.7	0647.2		68.3			
	202	IZMI	41 F	0636.1	0636.5	1.9	90			
	9100	GORK	21 GRF	0637	0648.8	84.7	28	13.2		
	10500	BERN	45 C	0640.2	0644	11	50.8			
	2950	GORK		0641.3	0647.4		70			
	8800	ATHN	45 C	0641.3	0644.3	27.7	61.8	20.4		
	2950	GORK	46 C	0641.3	0644.7	10.4	70	2		
	8800	ATHN	45 C	0641.3	0647.3		68			
	2695	ATHN	45 C	0641.4	0647		38.9			
	2695	ATHN	45 C	0641.4	0644.4	41.5	38.9	11.7		
	8800	MANI	4 S/F	0641.8	0644.1	9.7	61.4	39		
	3000	BERL	4	0641	0644		33			
	1470	BERL	4	0641	0644.8	9.5	20			
	9500	BERL	4	0641	0644	13	49			
	15000	KISV	45 C	0642	0643	8	20			
	3100	CRIM	3 S	0642	0648	12	69	23		
	3100	CRIM	29 PBI	0642	0654	66	8	3		
	9100	GORK	46 C	0642.3	0644	6.4	74			
	9100	GORK		0642.3	0647.4		50.5			
	4995	MANI	4 S/F	0642.6	0644.1	9.6	41.4	26.9		
	2695	MANI	4 S/F	0642.6	0647.1	6.4	32.4	19.4		
	1415	MANI	4 S/F	0644	0647.1	7.5	12.3	7.8		
	1415	ATHN	45 C	0644.6	0647.2	10.8	14.1	4.2		
	1415	ATHN	45 C	0644.6	0650.4		14.1			
	930	BORD	46 C	0646	0650.4	5	38	4		
	950	GORK	4 S/F	0649	0649.7	1.8	21			
	2950	GORK	29 PBI	0651	0651	16.5	21			
	5730	IRKU	29 PBI	0651		14	18	10		L
	6100	KISV	29 PBI	0738.2	0741	8	97 D			
	10500	BERN	46 C	0738.8U	0740.6	8	178.8			
	228	HARS	7 C	0740	0741.5	6	321	30		
	200	HIRA	46 C	0740	0740.5	2	500	150		0
	15000	KISV	29 PBI	0740	0740.3	3	27 D			
	202	IZMI	5 S	0740	0740.8	2	1100	550		
	4995	ATHN	4 S/F	0740	0740.8	4.3	111.8	33.5		
	200	GORK	8 S	0740.2	0741 U	1.7	53			
	9100	GORK	2 SF	0740.3	0740.8	1.8	170			
	8800	ATHN	4 S/F	0740.3	0740.8	3.7	136	40.8		
	2695	ATHN	3 S	0740.3	0740.8	2.7	32.9	9.9		
	500	HIRA	6 S	0740.3	0740.6	1	8	4		0
	237	TRST	41 F	0740.3	0740.8	1.2	455			11L
	2695	MANI	3 S	0740.5	0740.9	1.3	29.2	19.4		
	100	HIRA	46 C	0740.5	0740.8	4.5	1500	700		0
	1415	MANI	3 S	0740.5	0740.9	1.3	5.6	3.4		
	1415	ATHN	1 S	0740.5	0740.9	3.9	8.5	2.5		
	8800	MANI	4 S/F	0740.5	0740.9	1.6	139.5	83.7		
	113	POTS	48 C	0740.5	0740.8	19	2100	80		
	234	POTS	48 C	0740.6	0740.8	19	160	3		
	4995	MANI	3 S	0740.6	0741	2.5	82.8	53.8		
	1470	BERL	4	0740	0740.5	2	7.9			
	2650	DWIN	3 S	0740	0741	2	30	10		
	10700	DWIN	3 S	0740	0741	2	64			
	9500	BERL	4	0740	0740.4	2.5	112			
	3000	BERL	4	0740	0740.5	6	40			
	5730	IRKU	2 S	0740	0740.7	3	105	25		R
	100	GORK	8 S	0741	0741.5	1.4	200			
	2695	ATHN	1 S	0757	0759	5.2	6	1.8		
	3100	CRIM	1 S	0757	0759	3	3	1		
	4995	ATHN	1 S	0757.2	0758.8	4.1	4.1	1.2		
	3000	BERL	4	0757	0757.4	3	13			
	1415	ATHN	3 S	0758.5	0759.3	7.8	22.6	6.8		
	1470	BERL	4	0758.5	0759	1.3	14			
	930	BORD	41 F	0758.6	0759	1.4	59	3		
	237	TRST	41 F	0758.6	0758.7	.8	480			13L
	808	ONDR	2 S/F	0758.7	0758.7	.4	42			
	202	IZMI	5 S	0758.8	0759.1	.8	500	250		
	10700	DWIN	45 C	0842	0844		15			
	2650	DWIN	45 C	0842	0847	10	60	40		
	237	TRST	47 GB	0908.4	0908.4	37.5	55			6L
	202	IZMI	41 F	0908.5	0911.3	4	65			
	113	POTS	48 C	0908.7	0909.8	1.4	1400	20		
	3100	CRIM	1 S	0910	0911	7	3	1		
	9100	GORK	20 GRF	0910.1	0936.4	44.7	15.3	6.8		
	536	ONDR	41 F	0910.3	0940	31	15	9		
	9500	BERL	20	0911	0936	52	10			
	1420	ARCE	1 S	0911	0911.1	1.2				
	808	ONDR	2 S/F	0914.6	0914.6	.3	60			
	3100	CRIM	3 S	0921	0935.5	31	10	3		
	1420	ARCE	40 F	0921.1	0932.6	26				
	1470	BERL	20	0921	0932.5	27	45			
	650	GORK	22 GRF	0922.1	0933.7	15.3	11	4		
	950	GORK	40 F	0924	0932.7	17.5	13.7			
	1415	ATHN	3 S	0924.7	0932.3	24.7	39.5	11.8		

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APR 1978	FREQUENCY	STATION	TYPE		STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} MEAN	INT	POLARIZATION OR REMARKS
	930	BCRC	40	F	0924	0932.6	21	27	5		
	100	GORK	46	C	0926.5	0927.3	11	270			
	100	GORK			0926.5	0934.1		270			
	3000	BERL	20		0926.5	0936.3	28	17			
	221	AEST	45	C	0929	0931	2	27	19		
	4995	ATHN	20	GRF	0929.9	0936.4	13.9	10.4	6.2		
	2695	ATHN	20	GRF	0930	0932.6	13.7	15	9		
	113	POTS	4		1005	1005	.2	175000	1750		
	1420	ARCE	1	S	1027.7	1027.8	.8				
	3100	CRIM	1	S	1055	1056	2	8	3		
	4995	BCUL	1	S	1657	1658.5	4	9	3		
	245	SGMR	6	S	1716.3	1720.8	6.7	116.5	46.6		3S
	1415	SGMR	3	S	1719.4	1719.7	1.5	13.9	5.6		3S
	2800	OTTA	40	F	1719.5	1719.8	1	4.8			
	410	SGMR	6	S	1719.5	1719.9	.5	5.5	2.2		3S
	1420	BCUL	8	S	1719	1719.5	1.5	11	3		
	1420	BCUL	1	S	1727.5	1728	1.5	4	1		
	2695	SGMR	4	S/F	1730.4	1733	9.9	17.7	7.1		3S
	8800	SGMR	4	S/F	1733	1738.6	7.1	17.5	7		3S
	4995	SGMR	4	S/F	1733.5	1737.7	6.3	20.8	8.3		3S
	2800	OTTA	2	S/F	1735.5	1738.5	4.5	4.8	2.4		
	2800	OTTA	23	GRF	1735	1804	95	4	2.2		
	4995	BCUL	4	SF	1735	1738	5	20	7		
	1415	SGMR	4	S/F	1737	1739.3	3.3	15.4	6.1		3S
	9400	HUAN	4	SF	1737.4	1738.6	3.1	16.5	5.8		0
	1420	BCUL	2	SF	1737	1739	2.5	9	3		
	245	SGMR	6	S	1740.8E	1740.8U	2.4D	55.9U	22.3U		3S
	2800	OTTA	1	S	1903.2	1903.5	1	1.4	.7		
	1415	SGMR	3	S	1919.8	1920.3	1.5	23.4	9.4		
	700	SYDN	4	S	2206.9	2207.2	.4				
	1400	SYDN	4	S	2219.5	2220.3	1				
	2800	OTTA	1	S	2219.5	2220.3	2.5	4.4	1.5		
	1420	BCUL	8	S	2219	2219.5	1.5	10	3		
	2695	PENT	22	GRF	2350	2440	100	4.8	2.8		
13	4995	BCUL	3	S	0021	0022.5	4	18	6		
	5730	IRKU	1	S	0408	0408.2	2	8	4		R
	1415	ATHN	45	C	0440.3	0448.6	37.4	16.1	4.8		
	1415	ATHN	45	C	0440.3	0456.6		29.5			
	8800	ATHN	45	C	0440.8	0456.8		86.5			
	8800	ATHN	45	C	0440.8	0452.5		98.9			
	4995	ATHN	45	C	0440.8	0456.8		104.5			
	8800	ATHN	45	C	0440.8	0447.5	32.5	43.3	13		
	4995	ATHN	45	C	0440.8	0452.5	37.7	72.4	21.7		
	2695	ATHN	45	C	0441.2	0447.4	37.9	21.1	6.3		
	2695	ATHN	45	C	0441.2	0456.8		68.6			
	2950	GORK			0446.1	0457.1		66			
	2950	GORK	46	C	0446.1	0447.7	16	26			
	1415	MANI	22	GRF	0446.4	0456.6	12.6	20.7	13.8		
	100	GORK	46	C	0446.7	0448	8	250			
	100	GORK			0446.7	0449.5		250			
	100	HIRA	46	C	0446.8	0447.2	2.5	6000	1000		WL
	4995	MANI	22	GRF	0446.9	0456.9	21.1	69.4	46.1		
	200	HIRA	7	C	0447	0447.2	.8	700	200		WL
	8800	MANI	22	GRF	0447.4	0452.7	19.2	165.6	110.4		IG
	9100	GORK	46	C	0454.5E	0457.2	7.4	97			
	9100	GORK			0454.5E	0458.6		67			
	5730	IRKU			0465.5	0451		19			R
	5730	IRKU			0465.5	0452.5		77			R
	5730	IRKU			0465.5	0457.1		84			R
	5730	IRKU			0465.5	0458		71			R
	5730	IRKU			0465.5	0454		57			R
	5730	IRKU	48	C	0465.5	0447.5	25	33	28		R
	5730	IRKU			0465.5	0447.9		29			R
	8800	ATHN	3	S	0624.3	0627.5	6.2	24.7	7.4		
	100	GORK	46	C	0625.8	0627.7	3.7	300			
	100	GORK			0625.8	0629		300			
	4995	ATHN	3	S	0625.8	0627.4	4.8	24.1	7.2		
	2695	ATHN	1	S	0625.8	0627.3	5.2	5.3	1.6		
	3100	CRIM	1	S	0626	0626.5	1	6	2		
	1415	ATHN	1	S	0626.2	0627.3	3.9	5.4	1.6		
	113	POTS	45	C	0626.6	0627.4	2.4	385	50		
	10500	BERN	1	S	0626.9	0627.4	3	21.6			
	8800	MANI	3	S	0627	0627.3	1	27.6	16.6		I
	6100	KISV	23	PBI	0627	0627.3	11	20			
	4995	MANI	3	S	0627	0627.4	4	20.4	12.4		
	1415	MANI	3	S	0627	0627.2	.5	4.6	2.9		
	2695	MANI	3	S	0627	0627.2	.4	2.9	1.7		
	2950	GORK	1	S	0627.4	0627.7	.9	13	6.5		
	9100	GORK	1	S	0627.5	0627.8	1.5	28.4	12		
	5730	IRKU	2	S	0627	0628.2	4	26	6		R
	260	ONCR	44	NS	0640 E		509 D	172	6		
	245	SGMR	43	NS	1150	1221.6	689 D	25.8			3,5,SWF
	410	SGMR	43	NS	1150	1624.8	689 D	7			3,5,SWF
	606	MANI	4	S/F	0701.6	0704.9	6.4	27.8	18.6		

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APR 1978	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	POLARIZATION OR REMARKS
	806	ONDR	45 C	0702.7	0704.2	4	177	40		
	930	BORO	46 C	0703	0706	8	208	7		
	1415	MANI	4 S/F	0704.6	0707.2	2.8	43.7	29.1		
	4995	MANI	3 S	0704.8	0707.8	5.2	16.3	10.8		
	10500	BERN	22 GRF	0704.8	0707.7	7	40			
	3000	BERL	4	0705	0706	5	12			
	4995	ATHN	3 S	0705.3	0706.2	4.5	14.1	4.2		
	2695	ATHN	3 S	0705.5	0707	4.1	10.6	3.2		
	9500	BERL	4	0705.5	0708.6	4.5	25			
	1415	ATHN	3 S	0705.7	0708.3	3.9	26.8	8		
	8800	MANI	3 S	0705.8	0707.7	3.2	52.4	34.9		I
	1470	BERL	4	0705	0708.3	7	35			
	5730	IRKU		0705	0706.3		9			R
	5730	IRKU	45 C	0705	0705.3	5	13	5		R
	5730	IRKU		0705	0708		14			R
	3100	CRIM		0706	0707.5		8	3		
	3100	CRIM	F	0706	0706.5	.2				
	9100	GORK	2 SF	0706.3	0709.1	5.9	33			
	8800	ATHN	3 S	0707.7	0708.8	2.6	18.5	5.6		
	202	IZMI	45 C	0708	0709.5	2	500	250		
	536	ONDR	4 S/F	0708.4	0709	2	26			
	113	POTS	45 C	0708.7	0709.4	1	875	60		
	234	POTS	45 C	0708.9	0709.2	1	385	7		
	237	TRST	41 F	0824.4	0824.7	.8	145			22L
	113	POTS	45 C	0824.5	0824.8	.5	700	70		
	202	IZMI	41 F	0828.8	0829.5	1.5	375			
	3100	CRIM	25 R	0901	0930		3			
	3100	CRIM	1 S	0912	0914	2.5	4	1		
	202	IZMI	7 C	0912	0913.2	3	120	52		
	9100	GORK	1 S	0913.6	0914.1	1.2	6.3	3		
	1420	ARCE	20 GRF	0937.9	0944.6	38				
	202	IZMI	46 C	0944	0944.5	1	650	230		
	234	POTS	48 C	0944.1	0944.4	5.3	400	8		
	237	TRST	41 F	0944.1	0944.4	.6	560			12L
	113	POTS	1 S	1000.2	1000.2	.1	100	30		
	237	TRST	41 F	1005.4	1005.4	.1	205			32L
	408	TRST	4 S	1005.5	1005.5	.1	270 D			
	536	ONDR	8 S	1005	1005	.3	58			
	1470	BERL	4	1031.5	1031.5	.5	18			
	3100	CRIM	1 S	1042	1043	2	3	1		
	950	GORK	2 S/F	1042.5	1043.2	2.8	14.3			
	930	BORO	41 F	1042	1043	2	72	4		
	202	IZMI	7 C	1107	1107	.5	370	175		
	237	TRST	41 F	1107	1107.1	.4	495			9L
	113	POTS	48 C	1127.6	1141.4	30	1400	1		
	3100	CRIM	1 S	1140.5	1141	1	5	2		
	2800	OTTA	8 S	1141.2	1141.3	.8	3.4	1.2		
	930	BORO	41 F	1154	1155	1	16	2		
	1420	ARCE	2 S/F	1256.5	1256.9	2.6				
	930	BORO	41 F	1256.8	1257	1.2	17	2		
	2800	OTTA	1 S	1256.9	1257	1	2	1		
	9500	BERL	20	1259	1311.8	36	12			
	2800	OTTA	21 GRF	1305	1315	55	6.2	2		
	4995	ATHN	3 S	1306	1311.8	23.3	28.4	8.5		
	8800	ATHN	20 GRF	1306.1	1311.8	23.2	14.1	8.4		
	2695	ATHN	3 S	1306.1	1311.8	22.9	20.2	6.1		
	3100	CRIM	29 PBI	1308	1313		5			
	3100	CRIM	3 S	1308	1302	5	14	5		
	1470	BERL	22	1309.5	1311.8	23	4.1			
	3000	BERL	4	1309	1311.8	9.5	17			
	245	SGMR	7 S	1310.1	1311.8	4.9	373	149		3G,5
	410	SGMR	6 S	1310.2	1310.3	.8	43.7	17.5		3G,5
	237	TRST	42 SER	1310.3	1310.5	4.3	110			6L
	237	TRST		1310.3	1311.7		635			16L
	1420	ARCE	1 S	1311.4	1311.7	5				
	606	SGMR	3 S	1311.5	1311.8	1	11.3	4.5		3G,5
	234	POTS	45 C	1311.6	1311.7	1.5	140	1 E		
	2695	SGMR	3 S	1311.6	1311.8	2.4	14.7	5.9		3G,5
	2800	OTTA	1 S	1311.7	1311.9	2	9.2	4.6		
	113	POTS	45 C	1311.7	1313.7	1.2	200	1 E		
	4995	SGMR	3 S	1311.8	1311.9	5.2	27.3	10.9		3G,5
	2650	OWIN	3 S	1311		2	10	5		
	237	TRST	41 F	1404.6	1404.7	.4	220			13L
	245	SGMR	6 S	1404.7	1404.8	2.3	172	68.8		3
	113	POTS	2	1404.7	1405.5	.9	1200	20		
	410	SGMR	6 S	1405.5	1405.6	.5	18.2	7.5		3
	127	TCRN	47 GB	1406.7	1407.3	3	600	18		
	10500	BERN	46 C	1436.4	1440.3	10	139			
	4995	ATHN	4 S/F	1437	1440.3	29.6	140.1	42		
	9400	HUAN	45 C	1437.1	1440.4	5.3	172.9	62.2		L
	3000	BERL	4	1437.5	1440	18	36			
	4995	SGMR	4 S/F	1437.5	1440.4	8.5	136	54.4		3,SWF
	8800	ATHN	4 S/F	1437.6	1440.3	29.5	176	52.8		
	9500	BERL	4	1437	1440	11	134			
	2695	ATHN	3 S	1438.1	1440.8	28.5	17.3	5.2		

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	8800	SGMR	4	S/F	1438.2	1439.8	4.8	173	69.2		3,SWF
	10700	DWIN	45	C	1438	1441	5	40			
	2650	DWIN	3	S	1438	1441	20	15	10		
	2800	OTTA	4	S/F	1438	1441	6	21	10.5		
	15400	SGMR	4	S/F	1439	1440.6	4	123	49.2		3,SWF
	2695	SGMR	3	S	1439.4	1440.7	5.6	23.1	9.2		3,SWF
	9400	HUAN	29	PBI	1442.4	1442.4	19.9	20.8	9.2		L
	2800	OTTA	30	PBI	1444	1444	75	11	5		
	2800	OTTA	1	S	1505	1505.7	1.5	1.4	.7		
	2800	OTTA	8	S	1550.8	1551	.5	1.2	.6		
	930	BORO	41	F	1657.4	1657.7	1.2	15	2		
	2800	OTTA	1	S	1657	1658.2	6	1.8	.9		
	2800	OTTA	20	GRF	1705	1725	55	2.6	1.6		
	1400	SYDN	31	ABS	2220.7	2220.8	1.7				
	700	SYDN		SER	2257.6	2259.5	2.6				
	606	MANI	1	S	2334.4	2335.2	.9	8.7	5.8		
	4995	MANI	3	S	2335.2	2336.7	4.5	22.9	15.2		
	8800	MANI	3	S	2335.2	2336.7	4.5	17.5	8.5		
14	2695	PENT	21	GRF	0015	0032	65	3.6	2		
	208	VORO	7	C	0020.5	0021.5	6.4	25	15		
	208	VORO			0020.5	0024		31			
	700	SYDN	4	S	0021	0023	5.5				
	1400	SYDN	20	GRF	0021.5	0023.9	4				
	1415	MANI	3	S	0021.5	0023.7	5	9.4	6.3		
	606	MANI	3	S	0021.7	0023.2	2.1	19.1	12.7		
	2695	MANI	3	S	0021.7	0023.7	4.8	17.2	11.5		
	4995	MANI	3	S	0021.7	0023.9	5.8	11.4	7.6		
	2695	PENT	3	S	0021.7	0024	6	14	7		
	1420	BCUL	2	SF	0021	0023.5	4	7	2		
	208	VORO	3	S	0022	0022.2	.5	90			
	2695	BCUL	3	S	0022	0024.5	5	15	5		
	208	VORO	29	PBI	0022	0027	23	5			
	200	GORK	43	NS	0354		546		10		
	221	ABST	44	NS	0500	0732	240	17			
	100	GORK	43	NS	0600		420		40		
	202	IZMI	44	NS	0600		360	45			
	260	ONDR	44	NS	0644 E		504 D	109	5		
	127	TORN	44	NS	0700 E	1105.8	520 D	1900			V=3
	240	KIEL	44	NS	0700	1627	600	160	25		
	1470	BERL	44	NS	0837	0840.3	13	15			
	245	SGMR	44	NS	1008 E	2144.6	792 D	32.4			5,CONT
	410	SGMR	44	NS	1008 E	1848.5	792 D	55.8			5,CONT
	3000	BERL	44	NS	1102	1111.8	18	24			
	1470	BERL	44	NS	1102	1105.2	16	12			
	200	HIRA	44	NS	2010 E	0800	780 D	110	65		ML
	100	HIRA	44	NS	2010 E	0545	620 D	350	150		SL
	208	VORO	44	NS	2200 E	0135	240 D	70	44		
	650	GORK	2	S/F	0409.7	0411.4	4.4	7.3	2		
	1400	SYDN	4	S	0411	0411.7	1.3				
	700	SYDN	45	C	0411	0411.1	1.5				
	950	GORK	1	S	0411.2	0412	1	6.1	3		
	650	GORK	40	F	0721.4	0820.5	74.6	29			
	113	POTS	45	C	0741.2	0741.8	.6	180	5		
	6100	KISV	45	C	0752	0758	18	7 D			
	4995	ATHN	3	S	0754.5	0756.4	9.3	21.4	12.8		
	8800	ATHN	3	S	0754.6	0756	8.7	19.3	11.6		
	9100	GORK	1	S	0755.2	0756.5	6	13.8	6		
	9500	BERL	20		0755	0755.4	3.5	4.4			
	1470	BERL	4		0815	0815.4	1	6.4			
	1420	ARCE	4	S/F	0815	0815.1	1				
	113	POTS	48	C	0825.8	0844.2	20	750	5		
	202	IZMI	41	F	0836	0842	7	350			
	950	GORK	40	F	0836	0839.6	12.5	8.7			
	6100	KISV	42	SER	0836	0843	19	23			
	8800	ATHN	3	S	0836.8	0842.8	13.7	33.8	20.3		
	2695	ATHN	3	S	0837.2	0839.5	13	16.1	9.6		
	650	GORK	22	GRF	0837.2	0839.8	8.9	25			
	4995	ATHN	45	C	0837.3	0839.5	13.2	21.4	6.4		
	4995	ATHN	45	C	0837.3	0842.8		25.7			
	4995	ATHN	45	C	0837.3	0844.1		25.7			
	536	ONDR	41	F	0837.5	0842.8	13	32	4.6		
	808	ONDR	41	F	0837	0839.2	10.5	26	7.4		
	930	BORO	40	F	0837	0839.5	13	26	3		
	3100	CRIM			0838	0840		28	9		
	3100	CRIM			0838	0850		5	2		
	3100	CRIM	41	F	0838	0845	13	13	4		
	2950	GORK	23	GRF	0838.1	0840.4	9.4	15			
	10500	BERN	22	GRF	0838.7	0842.9	12.5	23.9			
	2650	DWIN	45	C	0838	0840	12	20	10		
	100	GORK	8	S	0839	0839.5U	.8	14680			
	9100	GORK	21	GRF	0839.1	0839.9	11.2	12.6	5.5		
	2950	GORK	3	S	0839.3	0839.9	1.2	27	13		
	2695	MANI	4	S/F	0839.4	0840.1	1.4	8.6	5.1		
	4995	MANI	4	S/F	0839.6	0845.2	7.9	18.9	12.6		IG

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APR 1978	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	POLARIZATION OR REMARKS
	3000	BERL		0839	0840	10	17			
	9500	BERL	21	0839	0842.8	13	22			
	10700	OWIN	45 C	0839	0843	6	8			
	15000	KISV	45 C	0840	0843	9	18			
	1415	MANI	4 S/F	0840.4	0840.5	.2	28.9	19.3		
	9100	GORK	46 C	0841.7	0843	4.4	26.8			
	9100	GORK		0841.7	0844.9		22			
	234	POTS	2	0841.8	0841.9	.8	120	3		
	237	TRST	41 F	0841.8	0841.9	.2	590			47L
	113	POTS	48 C	0920.7	0932	11	770	10		
	202	IZMI	8 S	0931.8	0932	.5	700	240		
	6100	KISV	4 S/F	1011	1018	19	32			
	3100	CRIM	3 S	1014	1018	13	18	6		
	4995	ATHN	4 S/F	1014	1018.1	11.8	79.4	23.8		
	8800	ATHN	4 S/F	1014.7	1018.1	6.1	80.9	24.3		
	9100	GORK	4 S/F	1015	1018	6.6	87	22		
	10500	BERN	45 C	1015.6	1017.9	9	52.9			
	2695	ATHN	1 S	1015.8	1018.1	4.1	9	2.7		
	3000	BERL	4	1015	1018	8	14			
	9500	BERL	4	1015	1017.8	7.5	56			
	15000	KISV	45 C	1017	1018	5	26			
	10700	OWIN	3 S	1017	1018	3	15			
	2650	OWIN	3 S	1017	1018	4	10	5		
	202	IZMI	48 C	1032.5	1033.5	5.5	1700	550		
	113	POTS	45 C	1032.9	1037.4	4.6	700	20		
	3100	CRIM	1 S	1036	1036.5	1	4	1		
	2950	GORK	1 S	1036.1	1037.5	2.4	6	2		
	536	ONDR	2 S/F	1040.7	1041.7	2.6	13	3.2		
	408	TRST	41 F	1041.4	1042.7	2.1	29			
	4995	ATHN	3 S	1058.9	1105.3	29.7	41.8	12.5		
	8800	ATHN	3 S	1100.1	1105.8	20.2	47.6	14.3		
	245	SGMR	6 S	1100.2	1103.5	21.6	94.5	37.8		5
	2695	ATHN	3 S	1100.5	1104.8	20.9	18	5.4		
	8800	SGMR	3 S	1101.1	1105.7	12	35.7	14.3		5
	1415	ATHN	3 S	1101.3	1108.7	17.3	20.5	6.2		
	410	SGMR	8 S	1101.4	1105.7	15.2	120	73.2		5
	536	ONDR	46 C	1101.5	1105.5	15	143	15		
	4995	SGMR	3 S	1102	1105.2	18	36.3	14.5		5
	408	TRST	48 C	1102.2	1105.5	10.8	130 D			
	606	SGMR	3 S	1102.5	1105.3	14	266	79.8		5
	113	POTS	45 C	1102.6	1105.3	4.2	1100	80		
	2695	SGMR	3 S	1102.8	1104.7	16.7	16.6	6.9		5
	485	KIEL	45 C	1102	1116	16	180	50		
	800	KIEL	45 C	1102	1105	16	180	100		
	1420	KIEL	45 C	1102	1105.5	16	300	180		
	9500	BERL	4	1102	1106	18	30			
	602	KIEL	45 C	1102	1105.5	16	270	70		
	930	BORD	40 F	1102	1115.4	15	76	4		
	2650	OWIN	45 C	1102	1111	18	18	10		
	6100	KISV	45 C	1103	1105	17	25			
	3100	CRIM		1103	1115		10	3		
	3100	CRIM		1103	1106		17	6		
	3100	CRIM		1103	1111		18	6		
	3100	CRIM	41 F	1103	1109	16	18	6		
	10500	BERN	45 C	1103.3	1705.7	13	35			
	1415	SGMR	3 S	1103.4	1107.6	14.3	41.7	16.7		5
	9100	GORK	23 GRF	1103.6	1109	15.6	20	7		
	15400	SGMR	3 S	1103.9	1105.8	3.4	20.4	6.1		5
	10700	OWIN	45 C	1103	1106	15	8			
	808	ONDR	46 C	1103	1105	13	78	15.4		
	15000	KISV	45 C	1104	1106	16	27			
	9100	GORK	2 S/F	1104.2	1106.2	2.6	32	9.5		
	100	GORK	8 S	1105.3E	1105.7U	.8	248480			
	950	GORK		1105.5E	1114.6		21.9			
	950	GORK		1105.5E	1108	11	26			
	650	GORK		1106.4E	1115		31			
	650	GORK		1106.4E	1107.7	9.7	37			
	2950	GORK		1107.8E	1109	12.2	32			
	408	TRST	48 C	1113.5	1115.2	3	140 D			
	2800	OTTA	27AFRF	1200		200	3	2.6		
	2800	OTTA	24 R	1200	1207	7	3			
	930	BORD	41 F	1205	1207.4	5	20	2		
	2800	OTTA	24P R	1207		153	3			
	113	POTS	48 C	1216.8	1234.2	24	700	1		
	1420	ARCE	21 GRF	1222.5	1234.3	166				
	2800	OTTA	1 S	1230	1234.5	7	3	1.6		
	930	BORD	41 F	1230	1234	6	24	2		
	113	POTS	45 C	1315.6	1316.3	1.5	1800	80		
	2695	ATHN	3 S	1359.6	1401	3.6	18	5.4		
	8800	ATHN	3 S	1400.1	1401.1	3.2	19	5.7		
	1420	ARCE	46 C/F	1400.2	1401.1	2.2				
	1415	ATHN	3 S	1400.3	1401.5	3.3	17.6	5.3		
	4995	ATHN	3 S	1400.5	1401	3	25.1	7.5		
	113	POTS	45 C	1400.8	1400.9	.3	2500	600		
	9500	BERL	1 S	1400	1401.3	4.5	8.8			

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	1470	BERL	4	1400	1401	2	8.7			
	536	ONDR	4 S/F	1400	1401	3.5	45	4		
	808	ONDR	2 S/F	1400	1401.2	3	20	5.8		
	3000	BERL	4	1400	1400.9	4.5	19			
	2650	DWIN	3 S	1400	1401	2	12	5		
	2800	OTTA	26 FAL	1440	1520	40	-3	-1.6		
	113	POTS	2	1452.9	1453.4	.8	850	85		
	1420	ARCE	1 S	1551.2	1551.4	.5				
	2800	OTTA	27AFRF	1600		220	3	2.6		
	2800	OTTA	24 R	1600	1625	25	3	1.5		
	2800	OTTA	24P R	1625		165	3			
	2800	OTTA	2 S/F	1634	1634.3	2	2.4	1		
	1420	BCUL	40 F	1704.5	1705.5	2	4	1		
	1420	BCUL	40 F	1719.5	1720	1.5	2	1		
	1420	BCUL	1 S	1751.5	1752	1	3	1		
	606	SGMR	3 S	1837.5	1837.8	.5	10.4	4.2		CONT
	1420	BCUL	3 S	1844	1849	10	9	3		
	1415	SGMR	1 S	1846.5	1848.5	4.5	8.7	3.5		CONT
	2800	OTTA	1 S	1846.5	1848.5	7	7.4	3		
	2695	BCUL	3 S	1846.5	1849	11.5	8	3		
	2695	SGMR	1 S	1847	1848.4	5	6.7	2.7		CONT
	2800	OTTA	26 FAL	1910	1940	30	-3	-1.5		
	1420	BCUL	40 F	2035	2036	2.5	5	2		
	2800	OTTA	1 S	2036.9	2037	2	2.4	1		
	2695	BCUL	1 S	2037	2038	3	3	1		
	1420	BCUL	46 C	2159.5	2201	7.5	14	5		
	2800	OTTA	1 S	2201.2	2202.1	2	3	1.5		
	2800	OTTA	41 SER	2201.2	2207	6.8	6			
	1415	SGMR	3 S	2201.4	2202.3	6.6	14.3	5.7		CONT
	2695	BCUL	45 C	2201	2207.6	9	8	3		
	606	SGMR	3 S	2205	2205.8	1.2	87	34.8		CONT
	606	MANI	4 S/F	2205.4	2207	2.3	52.5	35		I
	2800	OTTA	1 S	2205.5	2207	2.5	6	2.5		
	4995	BCUL	3 S	2205	2206	2.5	20	7		
	2695	PENT	240AR	2228	2247	19	1.8	.9		
	4995	MANI	4 S/F	2241.1	2242.9	4.9	177.9	117.2		
	2695	PENT	4 S/F	2241.2	2243.5	5	19.6	9		
	8800	MANI	4 S/F	2241.3	2242.8	3.5	159.5	95.7		
	2695	MANI	4 S/F	2242.4	2243.6	2.7	14.3	9.5		
15	100	GORK	44 NS	0330 E		450		300		
	200	GORK	44 NS	0336		438		50		
	221	ABST	44 NS	0520	0641	230	13			
	202	IZMI	44 NS	0630		330	60			
	127	TORN	44 NS	0700 E	1146.4	520 D	280			V=1
	248	KIEL	44 NS	0700	1228.5	600	350	70		
	260	ONDR	44 NS	0700 E		482 D	132	15		
	245	SGMR	44 NS	1008 E	1933.2	793 D	169.7			S,CONT
	410	SGMR	44 NS	1008 E	1624.1	793 D	23.5			S,CONT
	606	SGMR	43 NS	1431.6	1619.3	238.4	62.8			CONT
	200	HIRA	44 NS	2010 E	0533	780 D	140	40		ML
	100	HIRA	44 NS	2010 E	2340	780 D	150	50		ML
	200	VORO	44 NS	2200 E	0000	240 D	45	24		
	9100	GORK	1 S	0514.7	0515.1	3.8	8.9	4		
	650	GORK	4 S/F	0529	0530.5	3.5	117			
	950	GORK	4 S/F	0529	0530.5	2.3	177			
	2950	GORK	1 S	0529.2	0530.6	3.3	6.4	3.2		
	606	MANI	4 S/F	0529.5	0530.5	1.9	87.6	58.4		
	1415	MANI	4 S/F	0529.8	0530.5	1.6	5.1	3.3		
	6100	KISV	29 PBI	0626	0631.3	54	25			
	9100	GORK	21 GRF	0629.2	0633.7	36.8	26.6	10.5		
	3100	CRIM	41 F	0630	0633	12	22	7		
	100	GORK	48 C	0630		1.5		300		
	3100	CRIM		0630	0637.5		20	7		
	10500	BERN	45 C	0630.5	0632.6	8.5	19.6			
	2950	GORK	4 S/F	0630.6	0636.9	11	45			
	950	GORK		0630.6	0634.2		41.4			
	650	GORK	46 C	0630.6	0631.5	32.4	109			
	650	GORK		0630.6	0635		30			
	650	GORK		0630.6	0652.5		118			
	113	POTS	2	0630.6	0631.7	9.4	7000	700		
	202	IZMI	40 F	0630.6	0636	15	450			
	950	GORK	46 C	0630.6	0631.3	12.1	25.6			
	1415	MANI	4 S/F	0630.7	0634.9	10.5	26.9	17.9		
	500	HIRA	42 SER	0630.7	0631.4	10	55	10		SL
	2695	MANI	4 S/F	0630.7	0636.8	14.1	37.8	25.2		
	606	MANI	4 S/F	0630.7	0631.7	15.5	83.4	55.6		
	9100	GORK		0630.8	0632.6		21.3			
	9100	GORK	46 C	0630.8	0631.3	2.4	24.8			
	4995	MANI	4 S/F	0630.9	0632.8	10.1	25.1	16.7		
	2695	ATHN	20 GRF	0630.9	0632.9	29.8	21.8	13.1		
	1415	ATHN	20 GRF	0630.9	0635.2	29.6	31	18.6		
	100	HIRA	48 C	0630	0631.5	12	50000	3000		ML
	2650	DWIN	45 C	0630	0637	11	25	15		
	4995	ATHN	20 GRF	0631	0632.9	29.7	41.8	25.1		

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	15000	KISV	29 PBI	0631	0633	49	13			
	8800	ATHN	20 GRF	0631	0631.5	27.9	16	9.6		
	930	BORD	42 SER	0631 E	0653	28 D	78	4		
	234	POTS	2	0634.2	0635.7	5.8	100	10		
	200	GORK	41 F	0634.5	0635.4	1.3	500			
	200	GORK		0637.5	0638.3	1.1	500			
	100	HIRA	24 R	0642	0730	150 D	600	500		SL
	606	MANI	4 S/F	0648.5	0652.8	10.6	176.1	117.4		
	950	GORK		0649.2	0655		25.7			
	950	GORK	46 C	0649.2	0652.6	8.9	50			
	500	HIRA	42 SER	0650.5	0655.4	10	210	60		SL
	200	GORK		0650.7	0654.8	6.8	530			
	202	IZMI	25 R	0651	0654.5	6	1000	500		
	234	POTS	45 C	0655.9E	0656.4E	2.4D	700			
	536	ONDR	46 C	0746.7	0749.8	7	110	46		
	3000	BERL	4	0747.5	0749.8	4.5	48			
	1420	ARCE	4 S/F	0747.6	0749.5	3.1				
	2650	DWIN	45 C	0747	0750	4	35	10		
	2950	GORK	3 S	0748	0750	2.9	48	12		
	650	GORK	46 C	0748	0749.7	16.5	127			
	650	GORK		0748	0752.4		65			
	3100	CRIM	3 S	0748	0750.5	3	33	11		
	606	MANI	3 S	0748	0749.8	8	149.3	99.6		
	950	GORK	4 S/F	0748	0749.9	2.7	66			
	2695	ATHN	3 S	0748.1	0750	4.4	37.3	11.2		
	1415	MANI	3 S	0748.1	0749.8	2.6	79.4	52.9		
	1415	ATHN	4 S/F	0748.5	0749.9	4	77.5	23.3		
	2695	MANI	3 S	0748.8	0750	2.3	37.8	25.2		
	1470	BERL	4	0748	0749.6	9	73			
	808	ONDR	46 C	0748	0749.8	8	146	22		
	930	BORD	46 C	0748	0750	8	105	8		
	1420	ARCE	29 PBI	0750.7		6.6				
	3100	CRIM	1 S	0752	0752.5	1	4	1		
	6100	KISV	2 S/F	0801	0804	4	3			
	3100	CRIM	1 S	0806	0807.5	2	3	1		
	113	POTS	45 C	0810	0812.5	8	2600	130		
	1470	BERL	4	0810.5	0813.4	13	29			
	650	GORK	46 C	0811.3	0813.4	8.2	4680			
	1420	ARCE	4 S/F	0811.5	0813.1	3				
	808	ONDR	4 S/F	0811.6		4.5	626	166		
	202	IZMI	46 C	0811.8	0813	7	5500	1500		
	500	HIRA	46 C	0811.8	0813.2	3.3	640	300		SL
	3000	BERL	4	0811	0813.2	9	38			
	100	HIRA	46 C	0811	0812.8	6	6000	3000		WL
	930	BORD	46 C	0811	0813	8	2028	10		
	15000	KISV	29 PBI	0812	0814.3	11	35			
	3100	CRIM	3 S	0812	0813.5	9	35	12		
	6100	KISV	45 C	0812	0815	9	66			
	1415	MANI	3 S	0812	0813.3	2.3	32	21.3		
	606	MANI	47 GB	0812	0813.3	3.1	1974.4	1316.3		
	2695	MANI	3 S	0812	0812.9	4	25.2	16.8		
	100	GORK	48 C	0812	0814	2.6	237900			
	10500	BERN	46 C	0812.4	0814.5	10	40.4			
	1415	ATHN	3 S	0812.4	0814	9.3	31	9.3		
	200	HIRA	46 C	0812.5	0813	2	13000	1000		O
	9500	BERL	4	0812.5	0814.3	7.5	40			
	4995	ATHN	4 S/F	0812.6	0814.7	9.1	81.5	24.5		
	2695	ATHN	3 S	0812.6	0814	9.1	31.1	9.3		
	8800	ATHN	4 S/F	0812.6	0814.7	9.1	74.5	22.4		
	237	TRST	41 F	0812.6	0812.8	1.3	9700			18L
	234	POTS	2	0812.7	0812.8	5.1	5300	150		
	9100	GORK		0812.7	0814.6		50			
	9100	GORK	29 PBI	0812.7	0815.5	8.3	30	8.5		
	9100	GORK	46 C	0812.7	0813.5	2.8	37.3			
	4995	MANI	3 S	0812.9	0814.7	6.1	62.8	40.8		
	2650	DWIN	45 C	0812	0813	10	35	15		
	536	ONDR	46 C	0812	0813.4	4	325	84		
	200	GORK		0813.2	0814.3		1600			
	200	GORK	46 C	0813.2	0813.3	2	330			
	1420	ARCE	29 PBI	0814.5		8.4				
	2950	GORK		0815.3E	0816.4	10.3	61			
	202	IZMI	7 C	0827.5	0829	2.5	550	200		
	650	GORK	3 S	0857.4	0858.6	1.5	34			
	930	BORD	46 C	0857	0858.8	2	94	5		
	950	GORK	3 S	0858.1	0858.8	.9	25.4	12.7		
	1420	ARCE	2 S/F	0858.2	0858.5	.8				
	808	ONDR	3 S	0858	0858	.5	58			
	536	ONDR	42 SER	0858		41	22			
	1420	ARCE	2 S/F	0904.7	0905.1	.8				
	408	TRST	7 C	0938.7	0938.8	.2	110			
	808	ONDR	45 C	1008.8	1012.3	4.5	182	20		
	650	GORK	4 S/F	1008.9	1011.8	4	123	27		
	800	KIEL	45 C	1008	1011.5	5	180	80		
	1420	ARCE	2 S/F	1009.9	1011.6	3.5				
	930	BORD	46 C	1009	1012	4	113	9		

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	602	KIEL	45 C	1009	1012	5	160	70		
	950	GORK		1010.1E	1012.1U	3	45			
	405	KIEL	45 C	1010	1011.5	4	60	45		
	536	ONDR	45 C	1010	1011.1	2	58	32		
	240	KIEL	45 C	1010	1011	2	150	70		
	1420	KIEL	45 C	1010	1012	3	120			
	536	ONDR	46 C	1104	1107.6	4.8	49	8		
	930	BORD	3 S	1109	1109.3	.4	16	3		
	808	ONDR	45 C	1114	1115.7	3.5	38	10		
	930	BORD	46 C	1115	1116.8	4	44	4		
	808	ONDR	46 C	1133.8	1146.5	20	333	31		
	930	BORD	46 C	1134	1146	19	374	10		
	113	POTS	45 C	1136.6	1136.4	.8	500	125		
	9500	BERL	20	1144	1146.5	9	7.2			
	6100	KISV	48 F	1145	1146	7	14			
	1420	ARCE	4 S/F	1145.5	1146.3	1.8				
	536	ONDR	46 C	1145.5	1150	6.5	280	50		
	4995	ATHN	3 S	1145.5	1146.6	5.5	22.6	6.8		
	1415	ATHN	4 S/F	1145.5	1146.8	5.5	73	21.9		
	8800	ATHN	3 S	1145.5	1146.6	5.4	10.2	3.1		
	1470	BERL	4	1145.8	1147	5.2	67			
	408	TRST	47 GB	1145.8	1146.4	5	260 D			
	606	SGMR	47 GB	1145.9	1146.8	5.9	618	342		5,CONT
	4995	SGMR	3 S	1145.9	1146.4	5	23.5	7.1		5,CONT
	1415	SGMR	3 S	1145.9	1146.7	5.6	94	28.2		5,CONT
	245	SGMR	6 S	1145.9	1146.5	5.1	101	30.3		5,CONT
	606	SGMR	47 GB	1145.9	1149.1		1140			5,CONT
	3000	BERL	4	1145	1146.5	6.5	24			
	240	KIEL	45 C	1145	1147	4	160	70		
	2695	SGMR	3 S	1146	1146.6	5.1	21	6.3		5,CONT
	410	SGMR	7 S	1146	1146.4	5	398	119		5,CONT
	2695	ATHN	3 S	1146	1146.6	5.2	19.1	5.7		
	237	TRST	5 S	1146	1146.3	.9	95	22		41L
	2800	OTTA	45 C	1146	1146.5	6	16.4	5.5		
	405	KIEL	45 C	1146	1146.5	6	220	60		
	602	KIEL	45 C	1146	1150	7	800	100		
	2650	CWIN	45 C	1146	1147	5	15	5		
	800	KIEL	45 C	1146	1147	7	500	100		
	1420	KIEL	45 C	1146	1146.5	6	190	120		
	930	BORD	41 F	1210	1210.8	1	25	2		
	1420	ARCE	40 F	1220.9	1228	11				
	405	KIEL	45 C	1220	1227	12	120	60		
	2800	OTTA	4 S/F	1220	1228.5	13	30	10		
	602	KIEL	45 C	1220	1229	12	180	80		
	930	BORD	41 F	1221	1227	9	33	9		
	808	ONDR	45 C	1221	1226.4	14	55	15		
	1420	KIEL	45 C	1221	1228	11	150	120		
	800	KIEL	45 C	1221	1227	11	120	80		
	1470	BERL	4	1222.4	1228	20	13			
	1470	BERL	4	1222.4	1228.6		13			
	4995	ATHN	20 GRF	1222.8	1228.6	10.4	8.2	2.5		
	3000	BERL	4	1222	1227.2	18	31			
	2650	CWIN	45 C	1222	1228	10	20	10		
	2695	ATHN	3 S	1223	1228.6	10.2	25.5	7.7		
	1415	ATHN	3 S	1223.2	1226.8	6.3	12.2	3.6		
	1415	SGMR	3 S	1223.4	1228.2	8.6	21.8	6.5		CONT
	536	ONDR	46 C	1223.8	1229.2	8	88	24		
	2695	SGMR	3 S	1224.2	1228.5	7.8	29.5	8.9		CONT
	606	SGMR	4 S/F	1224.7	1229	6.3	245	73.5		CONT
	410	SGMR	6 S	1224.7	1227.1	6.3	95	28.5		CONT
	15000	KISV	1 S/F	1225	1229	9	10			
	8800	ATHN	3 S	1225	1230.7	7.5	15.3	4.6		
	408	TRST	42 SER	1225.5	1227	5	170			
	245	SGMR	6 S	1225.6	1230	6.6	160	48		CONT
	234	POTS	45 C	1225.7	1238	18	260	30		
	237	TRST	47 GB	1225.7	1238.5	13.4	750			93L
	9500	BERL	20	1225	1229	38	8.8			
	4995	SGMR	3 S	1226	1228.4	5	29.4	8.8		CONT
	240	KIEL	45 C	1228	1228.5	12	350	80		
	2800	OTTA	29 PBI	1233	1233	87	7.4	2.5		
	2800	OTTA	20 GRF	1420	1455	70	2.8	1.4		
	1420	ARCE	2 S/F	1454.3	1455	2.5				
	2800	OTTA	21 GRF	1605	1617	35	5	2.5		
	1420	ARCE	40 F	1611.3	1612.6	11				
	1420	BCUL	40 F	1611	1612.5	17.5	18	6		
	2695	BCUL	46 C	1612.5	1615	8.5	7	2		
	930	BORD	41 F	1612	1615	13	289	5		
	2800	OTTA	1 S	1614	1614.5	2	4.6	2.3		
	2800	OTTA	1 S	1618	1618.7	.2	2.8	1.4		
	2800	OTTA	1 S	1623.5	1623.8	1	1.4	.7		
	2800	OTTA	21 GRF	1700	1810	205	8	5		
	2800	OTTA	8 S	1743.6	1743.8	.3	1.4	.7		
	1420	BOUL	46 C	1824.5	1832	15	7	2		
	2800	OTTA	21 GRF	2055	2117	125	2.6	1.3		
	2800	OTTA	8 S	2122	2122.1	.9	2.8	1.4		

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APR 1978	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	POLARIZATION OR REMARKS
	2300	OTTA	1 S	2152	2152.2	1	2	1		
	4995	BCUL	4 SF	2215	2217.5	10	15	5		
	1420	BCUL	1 S	2341	2341.5	1.5	4	1		
	2695	PENT	1 S	2342	2342.5	1.5	5.4	2.7		
	2695	BCUL	1 S	2342	2343	2	6	2		
16	606	MANI	8 S	0144.6	0144.8	.4	68	45.4		I
	100	GORK	44 NS	0344 E		436		30		
	200	GORK	44 NS	0345		420		30		
	260	ONDR	44 NS	0640 E		510 D	94	7		
	202	IZMI	44 NS	0700		300	57			
	240	KIEL	44 NS	0700	1331	600	100	40		
	127	TORN	44 NS	0700 E	0926.2	520 D	110			V=1
	245	SGMR	44 NS	1005 E	2115.3	797 D	214			3,CONT
	418	SGMR	44 NS	1005 E	2152.8	797 D	18			3,CONT
	200	HIRA	44 NS	2010 E	2140	780 D	70	20		ML
	100	HIRA	44 NS	2010 E	0105	780 D	100	35		ML
	208	VORO	44 NS	2200 E	0025	240 D	40	20		
	650	GORK	2 S/F	0412	0412.5	4	17.5	4.5		
	1415	ATHN	1 S	0628.5	0631.3	4.4	9.7	2.9		
	950	GORK	1 S	0630.3	0631.3	1.7	4.5			
	606	MANI	3 S	0630.4	0631.2	1.2	11.3	7.5		
	650	GORK	1 S	0630.9	0631.3	3.2	8.5	2		
	1415	MANI	1 S	0631	0631.3	.4	13.3	8.8		
	2650	OWIN	45 C	0914	0915	7	75	15		
	536	ONDR	45 C	0916.8	0916.8	8	202	19		
	1415	ATHN	4 S/F	0918.1	0920	10.2	54.7	16.4		
	1420	ARCE	4 S/F	0918.6	0919.6	2.5				
	1415	MANI	4 S/F	0918.7	0920	6.5	76.4	50.9		
	4995	ATHN	4 S/F	0918.8	0919.9	15	152.8	45.8		
	2695	ATHN	4 S/F	0918.9	0919.8	16.7	85	25.5		
	127	TORN	47 GB	0918.9	0919.7	6.5	620	170		
	2695	MANI	4 S/F	0918.9	0919.9	6.4	81.4	54.3		
	930	BORD	46 C	0918	0919.5	7	158	11		
	240	KIEL	45 C	0918	0910.5	11	190	70		
	100	GORK		0919	0923.3		233000			
	950	GORK	45 C	0919	0919.5	6.8	69.8			
	6100	KISV	45 C	0919	0920	10	9 D			
	4995	MANI	4 S/F	0919	0920	6.6	143.1	95.4		
	3100	CRIM	3 S	0919	0920	3	118	39		
	3100	CRIM	30 PBI	0919	0922	15	18			
	950	GORK		0919	0923.6		14			
	100	GORK	48 C	0919	0920.5	5	233000			
	8800	MANI	4 S/F	0919.1U	0920	5.9U	139.3U	92.9U		I
	10500	BERN	3 S	0919.1	0919.7	8	139			
	202	IZMI	41 F	0919.2	0921.5	4.8	700			
	200	GORK		0919.2	0923.2		460			
	650	GORK		0919.2	0923.4		23			
	2950	GORK	4 SF	0919.2	0919.8U	2	157			
	200	GORK	41 F	0919.2	0919.8	4.9	100			
	200	GORK		0919.2	0922.4		450			
	650	GORK	46 C	0919.2	0919.6	7.8	114			
	808	ONDR	45 C	0919.3	0919.8	8	303	38		
	8800	ATHN	4 S/F	0919.3	0919.9	9.9	151.1	45.3		
	237	TRST	41 F	0919.3	0919.9	1.4	265			26L
	408	TRST	47 GB	0919.3	0921.5	6	2600 D			
	606	MANI	4 S/F	0919.4	0919.5	5.6	160.5	106.9		
	9100	GORK	29 PBI	0919.4	0920.3	16.5	30	8.5		
	9100	GORK	3 S	0919.4	0919.9	1	205	100		
	1420	KIEL	45 C	0919	0910	10	190	120		
	602	KIEL	45 C	0919	0910	11	400	80		
	800	KIEL	45 C	0919	0910.5	8	800	100		
	405	KIEL	45 C	0919	0912	10	2000	80		
	1420	ARCE	30 PBI	0921.1		2.6				
	1420	ARCE	3 S	0922.3	0923.5	8.6				
	3100	CRIM	3 S	0922.5	0923.5	1.5	37	12		
	2800	OTTA	1 S	1152.5	1153.2	1	1.8	.9		
	2300	OTTA	20 GRF	1200	1207	20	1.8	.9		
	1415	ATHN	3 S	1634.7	1639.8	12.5	50.6	30.3		
	4995	ATHN	3 S	1638.7	1643.8	10.4	19.6	11.8		
	2695	ATHN	3 S	1638.9	1642.3	8.4	51.5	30.9		
	8800	ATHN	3 S	1639.4	1640.8	9.4	69.6	41.7		
17	700	SYDN	20 GRF	0037.1	0039	2.9				
	1400	SYDN	20 GRF	0037.1	0039	7				
	100	GORK	44 NS	0355 E		380		20		
	200	GORK	44 NS	0400 E		450		10		
	221	ABST	44 NS	0500	1121	240	21			
	260	ONDR	44 NS	0640 E		510 D	47	9		
	127	TORN	44 NS	0930 E	1257.6	320 D	270			V=1
	410	SGMR	44 NS	1003 E	1906.8	800 D	84.5			3,CONT
	245	SGMR	44 NS	1003 E	1100.1	800 D	147			3,CONT
	208	VORO	44 NS	2200 E		420 D		10		
	6100	KISV	4 S/F	0607	0609.3	7	3			
	6100	KISV	1 S	0838	0839	4	2			

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APR 1978	FREQUENCY	STATION	TYPE		STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	POLARIZATION OR REMARKS
	1420	ARCE	1	S	1031.3	1031.5	.6				
	2800	OTTA	20	GRF	1200		230	3.6	1.8		
	2800	OTTA	21	GRF	1900	2030	240	2.6	1.6		
	1420	BCUL	2	SF	1905	1905.5	1.5	3	1		
	2695	BCUL	1	S	1906.5	1908	3	1	.3		
	2800	OTTA	1	S	1906	1907	3	1.6	.8		
18	2695	PENT	4	S/F	0104.5	0111.5	14.5	97	35		
	1400	SYDN	45	C	0104.8	0109.8	15.1				
	500	HIRA			0106	0121.6		60			ML
	500	HIRA	48	C	0106	0111.4	26	190	30		SL
	700	SYDN	45	C	0107	0111.7	24.9				
	8800	MANI	3	S	0107.7	0110.8	9.5	49.6	32.9		IG
	2695	MANI	3	S	0107.7	0110.5	8.3	103.6	69.1		
	4995	MANI	3	S	0107.7	0110.8	9.5	69.6	46.3		
	606	MANI	4	S/F	0107.7	0110.4	15.2	81.9	54.6		
	1415	MANI	3	S	0107.7	0110.1	8.3	160.6	107.1		
	208	VORO			0107	0122		165			
	200	HIRA	46	C	0107	0110	10	100	60		ML
	208	VORO	48	C	0107	0111	28	190			
	100	HIRA	48	C	0108	0110	8	6000	700		WL
	100	HIRA	24	R	0116	0138	480 D	200	70		ML
	200	HIRA	24	R	0117	0308	480 D	70	30		ML
	2695	PENT	29	PBI	0119	0119	20 D	9.6			
	200	HIRA	46	C	0120	0122	4	220	100		D
	208	VORO	29	PBI	0135	0308	205 D	60	30		
	3100	CRIM	20	GRF	0624	0635	53	4	1		
	100	HIRA	46	C	0808.5	0809.2	4	13000	2000		D
	202	IZMI	41	F	0808.5	0808.5	3	80			
	237	TRST	41	F	0809.2	0809.4	.2	244			D
	3100	CRIM	25	R	0920	1057		4			
	245	SGMR	44	NS	1002 E	1918.9	802 D	59.2			3,4
	1420	ARCE	41	SER	1036.6	1039	3				
	1420	ARCE	8	S	1036.6	1036.8	.6				
	1420	ARCE	1	S	1037.5	1037.6	.4				
	1420	ARCE	4	S/F	1038.5	1039	1.1				
	1420	ARCE	40	F	1105.4	1105.7	4				
	2800	OTTA	21	GRF	1200	1510	250	4.2	2.4		
	3100	CRIM	1	S	1246	1247	4	3	1		
	1420	ARCE	3	S	1246.1	1247.2	4				
	2800	OTTA	1	S	1246	1247.5	7	5.4	2		
	245	SGMR	6	S	1348.8	1351.8	5.2	35.2	14.1		4
	127	TORN	46	C	1348.9	1350.3	7	150	22		
	2800	OTTA	1	S	1350	1350.7	2	3.2	1.4		
	9100	ARCE	40	F	1355.5	1357.3	2.4				
	9100	ARCE	3	S	1721.7	1722.1	1.5				
	2800	OTTA	20	GRF	1742	1815	48	1.6	1		
	2800	OTTA	20	GRF	1850	1905	30	2	1.2		
	2800	OTTA	240	R	1950	2040	60	3	1.3		
	245	SGMR	6	S	2000.4	2001.2	1.4	45.8	18.3		
	606	SGMR	3	S	2000.6	2001	1	54.6	21.8		
	410	SGMR	6	S	2000.8	2001.2	.9	46.6	18.6		
19	221	ABST	44	NS	0500	0720	240	14			
	200	GORK	43	NS	0545		255		5		
	260	ONDR	44	NS	0636 E		510 D	44			
	127	TORN	43	NS	0842	0914.6	160 U	30			V=0
	100	GORK	43	NS	0908	0937	90		5		
	245	SGMR	44	NS	1000 E	1059.5	805 D	18.1			3
	245	SGMR	6	S	1421.2	1421.9	1.3	142	56.8		
	237	TRST	41	F	1421.2	1421.6	1	220			D
	9100	ARCE	1	S	1427.9	1428	.8				
	9100	ARCE	4	S/F	1429.8	1430.1	3				
	2800	OTTA	23	GRF	1453	1800	765	9.8	4.9		
	10500	BERN	45	C	1534	1536.5	4.5	11.7			
	1420	ARCE	1	S	1535.7	1536.2	.8				
	4995	ATHN	3	S	1535.9	1536.4	5.1	11.6	7		
	1420	BCUL	1	S	1535	1536	2	2	1		
	2695	ATHN	1	S	1536	1536.4	5	5.8	3.5		
	8800	ATHN	1	S	1536.1	1536.2	4.9	5.5	3.3		
	2695	BCUL	1	S	1536.5	1537.5	1.5	6	2		
	2800	OTTA	2	S/F	1536	1536.7	1.5	5.2	2		
	930	BORD	41	F	1630	1632.3	3	20	2		
	930	BORD	41	F	1640	1645.5	10	21	2		
	2800	OTTA	1	S	1950.5	1951.5	5	2.8	1.1		
	1420	BCUL	2	SF	1950	1951	2.5	3	1		
	2695	BCUL	1	S	1951	1952.5	3.5	4	1		
20	2695	PENT	1	S	0110.8	0111	1	1.4	.7		
	245	SGMR	44	NS	0959 E	1407.4	807 D	22			
	100	GORK	43	NS	1110		54		5		
	208	VORO	44	NS	2200 E		240 D		5		
	127	TORN	27	RF	1110 U	1140 U	220 D	15	4.5		
	930	BORD	8	S	1203	1203.3	.3	17	2		
	2800	OTTA	27A	RF	1335		150	1.4	1.2		

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APR 1978	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	POLARIZATION OR REMARKS
	2800	OTTA	24 R	1335	1355	20	1.4	.7		
	2800	OTTA	24P R	1355		115	1.4			
	1470	BERL	1 S	1452.5	1453.7	2.5	1.8			
	3000	BERL	1 S	1452.5	1453.7	3.5	4.6			
	2800	OTTA	1 S	1452.9	1453.5	2	4	1.8		
	2695	BCUL	1 S	1453	1454	3.5	5	2		
	2800	OTTA	20 GRF	1457	1515	40	2.2	1.4		
	2800	OTTA	26 FAL	1550	1605	15	-1.4	-.7		
	2800	OTTA	26 FAL	1615	1627	12	-2.8	-1.8		
	2800	OTTA	21 GRF	1705		255	6.8	4.8		
	1420	BOUL	8 S	1724.5	1725	1	14	5		
	2695	BCUL	1 S	1725	1726	2	4	1		
	930	BORD	41 F	1725	1725.4	1	46	3		
	2800	OTTA	2 S/F	1725	1725.5	1	4.2	1.1		
	2800	OTTA	1 S	1849	1854	8	2	1		
	2695	PENT	22 GRF	2140	2310	230 D	8.6			
21	3100	CRIM	20 GRF	0636	0642	27	6	2		
	950	GORK	21 GRF	0720.2	0731.7	20.3	5.5			
	260	ONDR	42 SER	0723.8	0751.5	30	83	16		
	200	HIRA	46 C	0724	0725	4.5	100	40		0
	100	GORK		0724	0726.7		3300			
	200	GORK		0724	0736.5		146			
	200	GORK		0724	0750.1		32			
	200	GORK		0724	0758.2		150			
	100	GORK	46 C	0724	0725.7	4	200			
	280	GORK	41 F	0724	0725.4	34	37			
	202	IZMI	21 GRF	0724	0725.5	4	100	50		
	650	GORK		0724.2	0735.5		15.3			
	650	GORK	45 C	0724.2	0725.7	23.8	10.5	4		
	113	POTS	48 C	0724.2	0725.5	13	700	15		
	237	TRST	41 F	0724.2	0726.2	2.4	80			10L
	127	TORN	45 C	0724.5	0726.1	3.5	310 U	50 U		
	100	HIRA	46 C	0724.5	0726	5	1500	500		0
	808	ONDR	42 SER	0724.6	0751.4	30	19	7		
	536	ONDR	42 SER	0724.7	0726.3	32	39	10		
	606	MANI	22 GRF	0724.8	0735.3	29.8	19.1	12.7		
	2695	MANI	22 GRF	0724.8	0736.4	33.2	35.8	23.8		
	4995	MANI	22 GRF	0724.8	0736.6	25.2	45	29.9		
	1405	MANI	22 GRF	0724.8	0736.2	33.2	36.9	24.6		
	500	HIRA	46 C	0724.8	0725.7	3	45	8		ML
	3100	CRIM	1 S	0725	0726	3	8	3		
	950	GORK	1 S	0725	0726.5	3	5.5			
	2950	GORK	1 S	0725.3	0725.7	3.2	5.5	3		
	5730	IRKU		0725	0735.5		11			R
	5730	IRKU		0725	0736.1		37			R
	1470	BERL	3 S	0725	0726	3	7.1			
	3000	BERL	3 S	0725	0726	3	12			
	5730	IRKU		0725	0737.1		45			R
	5730	IRKU	45 C	0725	0726.3	13	5	10		R
	2650	DWIN	3 S	0729	0730	3	6	5		
	100	GORK	43 NS	0730		57		5		
	100	GORK		0734	0736.1		1750			
	100	GORK	46 C	0734	0735	2.7	200			
	202	IZMI	21 GRF	0734	0735.5	4.3	120	65		
	200	HIRA	46 C	0734	0735.5	5.5	100	40		0
	3100	CRIM	3 S	0734	0736	4	22	7		
	2950	GORK	20 GRF	0734.1	0736.4	13.7	15	3		
	237	TRST	41 F	0734.1	0735.9	3.8	215			16L
	10500	BERN	45 C	0734.3	0736.3	10	18.5			
	930	BORD	3 S	0734.3	0735.4	4	16	5		
	500	HIRA	46 C	0734.4	0735.3	4	22	13		ML
	9500	BERL	4	0734.5	0736	11	19			
	2695	ATHN	3 S	0734.5	0736.2	5.3	20.1	12.1		
	4995	ATHN	3 S	0734.5	0736.2	5.4	42.4	25.5		
	1415	ATHN	3 S	0734.5	0736.3	4.9	11	6.6		
	9100	GORK	21 GRF	0734.6	0737.3	15	11.8	38		
	950	GORK	2 S	0734.6	0735.4	2.7	98			
	8800	ATHN	3 S	0734.7	0736	4.3	19.6	11.8		
	1470	BERL	4	0734	0736	6	15			
	3000	BERL	4	0734	0736	4.5	30			
	9100	GORK	1 S	0735	0736.2	2	17.3	8.5		
	100	HIRA	46 C	0735	0735	3	300	100		0
	10700	DWIN	3 S	0735	0736	3	7			
	2650	DWIN	45 C	0735	0737	5	20	10		
	5730	IRKU	29 PBI	0738		9	17	4		R
	200	HIRA	46 C	0748	0752	7	25	10		0
	500	HIRA	46 C	0748.2	0751.5	6	16	7		ML
	650	GORK	3 S	0748.3	0751.5	6.8	17.5	3.5		
	237	TRST	47 GB	0748.5	0751.8	6.1	98			15L
	950	GORK	1 S	0749.2	0751.4	3.4	5.5			
	245	SGMR	44 NS	0957 E	1250.7	811 D	19.1			3G,SWF
	9100	ARCE	1 S	1015.1	1015.3	1.2				
	9100	ARCE	1 S	1022.8	1022.9	.6				
	9100	ARCE	1 S	1329.3	1329.5	1.2				

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APR 1978	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	POLARIZATION OR REMARKS
	2800	OTTA 23 GRF		1527	1657	170	4.2	2.1		
	2800	OTTA 20 GRF		1640	1643	12	5.2	1.8		
	2800	OTTA 20 GRF		2057	2137	60	2.8	1.4		
22	650	GORK 8 S		0451	0451.1	.7	13			
	100	GORK 8 S		0451.2	0452.1	1.6	320			
	200	GORK 8 S		0451.2	0452	1.4	36			
	237	TRST 41 F		0759.6	0759.8	.4	730			15L
	202	IZMI 8 S		0800	0800	.2	180	90		
	113	POTS 4		0800	0800	.1	245	25		
	260	ONDR 44 NS		0850 E		370	50	4		
	245	SGMR 44 NS		0956 E	2000	813 D	102			
	410	SGMR 43 NS		1516.5	2201.7	492.5D	353			
	536	ONDR 41 F		0911.3	0918.5	8.5	13			
	3000	BERL 20		1305	1309.6	18	3.8			
	1470	BERL 20		1307.5	1310.5	8.5	1			
	237	TRST 5 S		1339.5	1339.5	.1	108	30		13L
	2800	OTTA 21 GRF		1420	1500	120	2	1.2		
	2800	OTTA 1 S		1515.9	1516	1.5	2.2	.8		
	2695	BCUL 40 F		1809	1816.5	76.5	39	13		
	1420	BCUL 40 F		1812	1904	53	4	1		
	245	SGMR 7 S		1815.4	1816	2.4	461	92.1		
	410	SGMR 48 GB		1816.1	1816.2	2.6	570	114		
	2800	OTTA 240 R		1845	1900	15	2	1		
	606	SGMR 3 S		1914.3	1915.4	1.9	56	16.8		
	1415	SGMR 3 S		1914.6	1915.1	1.2	38.4	11.5		
	245	SGMR 6 S		1914.6	1917.4	3.4	218	62.9		
	410	SGMR 7 S		1914.8	1916	1.8	298	89.5		
	1420	BCUL 8 S		1933.5	1934.5	2.5	28	9		
	2800	OTTA 20 GRF		2025	2035	20	2.2	1.1		
	2695	BCUL 40 F		2225.5	2321	74	72	24		
	1420	BCUL 1 S		2311	2311.5	2	3	1		
23	208	VORO 4 S/F		0009	0010	2	50			
	1420	BCUL 1 S		0035.5	0036	1.5	4	1		
	2695	PENT 1 S		0036.5	0036.9	1	2.8	1.4		
	2695	BCUL 1 S		0037	0037.5	1	4	1		
	208	VORO 4 S/F		0120	0121	2	34			
	100	GORK 44 NS		0356 E		204		5		
	200	GORK 43 NS		0515				12		
	260	ONDR 44 NS		0640 E		486 D	67	7		
	202	IZMI 44 NS		0700		300	140			
	127	TORN 44 NS		0740 E	0933.8	430 D	560			V=2
	100	GORK 43 NS		0814		163		10		
	245	SGMR 44 NS		0954 E	1511.7	816 D	166			CONT
	410	SGMR 44 NS		0954 E	1217	816 D	46.5			3,4,5,
	208	VORO 44 NS		2200 E		248		9		
	2950	GORK 26 FAL		0400		24				
	200	GORK 8 S		0411	0411.3	1.1	40			
	2695	MANI 47 GB		0422.3	0459.5	94.2	4500	3200		
	1415	MANI 47 GB		0422.4	0503.5	93.8	950	650		
	4995	MANI 47 GB		0422.4	0501	91.9	4500	2500		
	4995	ATHN 47 GB		0423.3	0500.4	230.2	7706	4624		
	1415	ATHN 47 GB		0423.9	0501.2	218.5	733.4	440		
	2950	GORK 23 GRF		0424	0612	324	68			
	8800	MANI 47 GB		0424 E	0504.2	90.2D	3900	2500		I
	5730	IRKU 49 GB		0424.2	0434.7	90	53			R
	5730	IRKU		0424.2	0500.5		4850			R
	2695	ATHN 47 GB		0424.4	0501.5	223.5	4253	2552		
	8800	ATHN 47 GB		0426.4	0500.4	218.3	3493	2096		
	606	MANI 22 GRF		0431	0503.3	66	77.4	50		
	9100	GORK 49 GB		0436 E	0501.6U	61.8	234.8			
	650	GORK 200 RF		0438.2	0503 U	54.8	20			
	2950	GORK 48 C		0439	0502	66	1079			
	950	GORK 21 GRF		0440.3	0502.8	67.7	73			
	100	GORK 8 S		0441.1	0441.5U	1.2	115			
	35000	NAGO 45 C		0453	0502	30	142			
	10500	BERN		0501.5E	0501.5E	43 D	959 D			
	100	GORK 41 F		0502.5	0503 U	4.1	115			
	100	GORK		0502.5	0505.2U		115			
	200	GORK 8 S		0502.6	0503.2	1	36			
	950	GORK 3 S		0503	0503.2	.5	22			
	100	GORK		0509	0541.6		5600			
	100	GORK 47 GB		0509	0519.9	41	910			
	100	GORK		0509	0531.1		520			
	35000	NAGO 29 PBI		0523	0523	127 D	64			
	930	BORD GRF		0606	0650	108	32	15		
	930	BORD		0626	0626	5	268	2		
	3100	CRIM 3 S		0633	0635	27	20	7		
	3000	BIRL 21		0700 E		451 D				
	1470	BERL 21		0700 E		440 D				
	9500	BERL 21		0700 E		430 D				
	536	ONDR 2 S/F		0713	0713	.4	22			
	536	ONDR 41 F		0758	0758.3	42	22	1.5		
	200	GORK 27 RF		0810.7	0924	127	200			

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	9100	ARCE	20 GRF	0822.2	0822.6	7				
	100	GORK	8 S	0822.6	0823.3	1.3	130			
	1420	ARCE	1 S	0828.5	0828.7	.8				
	930	BORD	3 S	0828.7	0828.9	.7	16	2		
	1420	ARCE	4 S/F	0904.1	0905.1	2.2				
	2695	ATHN	3 S	0904.5	0905.2	4.3	26.1	7.8		
	1470	BERL	4	0904.5	0906	8	840			
	4995	ATHN	3 S	0904.6	0905.1	2.4	29.4	8.8		
	1415	ATHN	47 GB	0904.6	0905.3	7	1123	337		
	4995	MANI	4 S/F	0904.7	0905.3	3	35.9	23.9		
	1415	MANI	47 GB	0904.7	0905.4	2.4	581.2	387.4		
	234	POTS	45 C	0904.7	0904.8	.9	100	10		
	8800	MANI	4 S/F	0904.7	0905.3	6.4	42.7	28.5		I
	2695	MANI	4 S/F	0904.8	0905.2	2.3	34.3	22.9		
	8800	ATHN	3 S	0904.8	0905.1	1.5	10.3	3.1		
	808	ONDR	45 C	0904.8	0905.4	8	25	8.5		
	930	BORD	46 C	0904	0909.4	7	57	9		
	3100	CRIM	3 S	0905	0905.5	3	26	9		
	2950	GORK		0905 E		1.9	26			
	950	GORK	21 GRF	0905.1E		7.7				
	950	GORK	3 S	0905.3	0905.7	1.2	14	1		
	202	IZMI	5 S	0905.5	0906	1	750	300		
	650	GORK	21 GRF	0905.8E	0906	9	8.5			
	3000	BERL	4	0905	0905.5	7.5	23			
	9100	ARCE	1 S	0905	0905.4	1.6				
	1420	ARCE	29 PBI	0906.3		9.4				
	958	GORK	3 S	0910.2	0910.6	.5	14			
	606	MANI	8 S	0910.3	0910.5	.7	53.7	35.8		
	650	GORK	3 S	0910.4	0911 U	.9	14			
	536	ONDR	8 S	0911	0911	.5	39			
	536	ONDR	8 S	0928	0928	.2	26			
	536	ONDR	3 S	0941.5	0941.5	.2	17			
	113	POTS	45 C	0950	0905.2	1.1	5500	800		
	536	ONDR	2 S/F	1030	1030	.5	18			
	1420	ARCE	22 GRF	1036.7	1046.4	26				
	9100	ARCE	22 GRF	1040.1	1046.6	15.5				
	113	POTS	45 C	1110.3	1111.1	2	350	15		
	1420	ARCE	22 GRF	1110	1110.5	9.8				
	2800	OTTA	22 GRF	1117	1125	22	3.4	1.7		
	2800	OTTA	21 GRF	1140		310	12			
	536	ONDR	41 F	1156.4	1156.4	24	35			
	408	TRST	7 C	1156.4	1156.5	.2	160			
	237	TRST	41 F	1156.5	1156.6	.1	370			12L
	237	TRST	41 F	1201	1201.4	.7	80			0
	113	POTS	45 C	1218.8	1219.8	2.5	600	20		
	245	SGMR	6 S	1219	1220.1	2.6	165.5	66.2		3S,CONT
	410	SGMR	6 S	1219.1	1220.1	2.7	22.3	8.9		3S,CONT
	237	TRST	41 F	1219.2	1220	1.2	230			4L
	606	SGMR	1 S	1219.8	1219.9	.4	9.5	3.8		3S,CONT
	9100	ARCE	20 GRF	1301.3	1308.9	18				
	1420	ARCE	22 GRF	1302.9	1308.4	22				RECORDDISTURBED
	245	SGMR	6 S	1306.2	1308	3.1	31.5	12.6		4,CONT
	536	ONDR	2 S/F	1307.7	1308.2	1.2	15	3.5		
	410	SGMR	6 S	1307.7	1308.7	1.7	4.8	1.9		4,CONT
	113	POTS	45 C	1308	1308.2	1.7	1000	70		
	1415	SGMR	2 S/F	1308.4	1309.1	2.1	5.6	2.2		4,CONT
	606	SGMR	4 S/F	1308.6	1308.9	.9	32.6	13.1		4,CONT
	2800	OTTA	1 S	1308	1308.9	3	3.6	1.6		
	1420	ARCE	22 GRF	1338.7	1437.7	150				
	237	TRST	41 F	1350.3	1350.5	.3	105			0
	237	TRST	41 F	1431	1431.2	.3	65			0
	113	POTS	48 C	1507.3	1511.6	5	700	5		
	237	TRST	41 F	1508.1	1508.3	.2	113			3L
	237	TRST	41 F	1511.4	1511.6	.3	260			4L
	1420	BCUL	1 S	1653.5	1654	3	6	2		
	2695	BCUL	41 F	1704 E	1708	11.5D	78	26		
	2800	OTTA	1 S	1739	1739.6	3.5	2	1		
	4995	SGMR	20 GRF	2009.9	2033.3	25.6	44.6	17.8		2,CONT,SWF
	1420	BCUL	40 F	2009	2012.5	30	9	3		
	2695	SGMR	20 GRF	2010	2031.4	25.5	24.3	9.7		2,CONT,SWF
	1415	SGMR	20 GRF	2010.3	2019.8	28.2	8.1	2.4		2,CONT,SWF
	606	SGMR	20 GRF	2011	2019.3	27.3	7.9	2.4		2,CONT,SWF
	2800	OTTA	45 C	2011.5	2027	27	13.2	8		
	4995	BCUL	41 F	2011	2025.5	32.5	32	11		
	410	SGMR	6 S	2015	2026.4	18.1	51.7	15.5		2,CONT,SWF
	8800	SGMR	20 GRF	2016	2027.4	19.5	29.1	11.6		2,CONT,SWF
	245	SGMR	7 C	2016.9	2020.1	24.3	325	130		2,CONT,SWF
	245	SGMR	7 C	2016.9	2033.7		197			2,CONT,SWF
	9400	HUAN	40 F	2017.7	2033.5	22.3	34	19.2		L
	1420	BCUL	1 S	2045.5	2046.5	2	6	2		
	2800	OTTA	2 S/F	2046.5	2047	1.2	5.2	1.8		
	1420	BCUL	1 S	2051	2051.5	2.5	3	1		
24	1400	SYDN	20 GRF	0108.5	0110	3				
	700	SYDN	1 S	0109.6	0109.8	.2				

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	700	SYDN	29 PBI	0109.8	0110.1	1.4				
	100	GORK	8 S	0433.8	0434.4U	1.2	100			
	100	HIRA	8 S	0434	0434	1	10000	2000		0
	9100	GORK	2 SF	0451	0452.2	4.5	67.3	30		
	260	ONDR	44 NS	0635 E		517 D	21	2		
	221	ABST	43 NS	0708	0735	60	11			
	245	SGMR	44 NS	0953 E	1447.3	818 D	56.3			3
	410	SGMR	44 NS	0953 E	1106	818 D	63			3
	208	VORO	44 NS	2200 E		240 D		6		
	100	HIRA	46 C	0723	0724	2	400	100		0
	200	HIRA	46 C	0723	0724	2	40	15		0
	100	GORK		0723.3	0725		220			
	100	GORK	46 C	0723.3	0724.3U	1.7	220			
	113	POTS	45 C	0723.7	0724.6	1.8	150	15		
	3100	CRIM	25 R	0733	1147		6			
	221	ABST	6 S	0734.8	0735	1.5	24	11		
	3100	CRIM	1 S	0827	0838	18	6	2		
	4995	ATHN	20 GRF	0930.1	0933.8	60.1	29.4	17.6		
	8800	ATHN	20 GRF	0931.8	0935.4	19.4	5.1	3.1		
	4995	ATHN	3 S	1001.4	1002	4.2	10.5	3.2		
	930	BORD	8 S	1013	1013	.2	18	2		
	113	POTS	45 C	1049.5	1049.7	.6	100	10		
	930	BORD	8 S	1101	1101.3	1	18	2		
	2800	OTTA	21 GRF	1125	1150	145	4.8			
	4995	ATHN	20 GRF	1313.5	1325.5	26.8	63.6	38.2		
	8800	ATHN	20 GRF	1320	1325.5	20.3	22.5	13.5		
	9400	HUAN	20 GRF	1320.5	1325.4	15.8	8.4	4.2		R
	2695	ATHN	20 GRF	1320.6	1325.5	19.3	2.9	1.8		
	9100	ARCE	20 GRF	1324.3	1325.7	18.5				
	2800	OTTA	1 S	1324	1325.5	4	3.2	1.4		
	2800	OTTA	21 GRF	1420	1503	105 D	4.8			
	2800	OTTA	1A S	1442.5	1443.5	1.5	1.4	.7		
	2695	BOUL	49 GB	1540 E	1542.5	15 D	4509	1503		
	4995	SGMR	20 GRF	1635.2	1645.3	17.8	19.5	7.8		
	8800	SGMR	20 GRF	1640	1645.4	10.1	13.2	5.3		
	2800	OTTA	22 GRF	1842	1845	16	4.2	1.4		
	2695	SGMR	1 S	1844.5	1845.4	7.5	4.3	1.7		
	2800	OTTA	32 ABS	2040	2047	20	-1.8	-.9		
	2800	OTTA	20 GRF	2101	2120	40	2.8	1.6		
	2800	OTTA	240 R	2142	2156	14	2.8	1.4		
	2800	OTTA	20 GRF	2202	2210	20	1.4	.9		
25	200	GORK	43 NS	0345		196		5		
	260	ONDR	44 NS	0640 E		505 D	60	4		
	200	GORK	43 NS	0730		330		5		
	410	SGMR	44 NS	1250 E	1340	702 D	167			3
	245	SGMR	44 NS	1250 E	1335.6	702 D	141			3
	4995	ATHN	4 S/F	0447.7	0451.8	7.4	111.2	33.4		
	4995	MANI	3 S	0450.7	0451.9	4	93.3	62.2		
	8800	MANI	3 S	0451	0452.2	2.5	80.5	53.7		
	8800	ATHN	4 S/F	0451	0451.8	6.7	71.8	21.5		
	930	BORD	8 S	0801.3	0801.3	.1	25	1		
	930	BORD	8 S	0955.2	0955.4	.2	25	2		
	1420	ARCE	1 S	1024.4	1024.6	.5				
	2800	OTTA	20 GRF	1150	1213	40	2.6	1.3		
	3000	BERL	3 S	1300.5	1300.6	.5	12			
	2800	OTTA	23 GRF	1317	1329	45 D	3.2			
	9100	ARCE		1319.8	1329.2	13.6				
	9100	ARCE	20 GRF	1319.8	1339	36				
	3000	BERL	20	1319	1328.8	24	6.2			
	4995	ATHN	20 GRF	1322	1328.8	21.3	10.5	6.3		
	9400	HUAN	21 GRF	1322.6	1327.3	24	3.3	1.3		R
	8800	ATHN	20 GRF	1323.4	1338.1	19.9	32.2	19.3		
	1420	ARCE	4 S/F	1325.3	1326	2				
	1415	ATHN	40 F	1325.4	1338.8	17	35.4	17.7		
	808	ONDR	41 F	1325.4	1338	15	58	5		
	1470	BERL	4	1325	1326.1	4.5	28			
	1420	BOUL	42 SER	1325	1338.5	16.5	46	15		
	1420	ARCE	23 GRF	1325		43.5				
	1415	SGMR	3 S	1326.1	1326.3	23.9	45	18		
	9500	BERL	1 S	1326	1327.5	4.5	7.3			
	4995	BCUL	1 S	1327.5	1329	2.5	8	3		
	536	ONDR	41 F	1327	1327	13.5	14	1.3		
	9400	HUAN	3 S	1328	1328.9	1.6	10	3.7		R
	4995	SGMR	20 GRF	1328.1	1329	14.9	9.9	4		
	2695	SGMR	20 GRF	1328.1	1329	15.4	2.7	1.1		
	8800	SGMR	20 GRF	1328.1	1338.5	14.9	21.2	8.5		
	9100	ARCE		1333.4	1339	22.4				
	10500	BERN	46 C	1334.4	1338.7	8.5	23.5			
	237	TRST		1334.5	1337.9		75			26L
	237	TRST	42 SER	1334.5	1334.5	4.9	230			39L
	237	TRST		1334.5	1339.2		65			21L
	237	TRST		1334.5	1338.6		120			38L
	930	BORD	46 C	1334	1338	8	73	4		
	1470	BERL	4	1334	1337.9	8	34			

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APR 1978	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	POLARIZATION OR REMARKS
	4995	9CUL	1 S	1336.5	1338	3	8	3		
	9500	BERL	4	1336.8	1337.5	5.4	22			
	1420	ARCE	40 F	1337.2	1338.6	5				
	9400	HUAN	3 S	1337.6	1339	1.8	16.7	10.9		R
	2800	OTTA	2 S/F	1337	1338	3	4	2		
	9400	HUAN	3 S	1340.2	1341	1.8	13.4	2.8		R
	2695	PENT	1 S	1420.1	1420.9	1	2.8	1.4		
	9400	HUAN	20 GRF	1420.3	1428.1	39.7	11.7	4.6		R
	113	POTS	45 C	1430.8	1431	.4	100	25		
	2800	OTTA	20 GRF	1513.5	1518	16	3.2	1.6		
	9400	HUAN	21 GRF	1530.7	1552.4	21.3	23.4	11.9		D
	2800	OTTA	21 GRF	1530	1633	210	7.8	3.9		
	2695	SGMR	47 GB	1532.4	1541.5	34.3	3690	3480		SWF
	4995	SGMR	3 S	1532.5	1541.8	30.2	35.1	19		SWF
	9100	ARCE	20 GRF	1534.1	1542	45				
	8800	SGMR	3 S	1534.2	1541.8	12.6	33.4	13.4		SWF
	8800	ATHN	20 GRF	1538	1541.3	26.5	32.2	19.3		
	2695	ATHN	47 GB	1539.1	1541.2	21.2	4256.5	1600		
	4995	ATHN	20 GRF	1539.1	1541.3	21.2	25.2	15.1		
	9400	HUAN	4 SF	1539.2	1541.7	4.6	26.7	13.4		D
	1415	SGMR	3 S	1539.3	1542.3	9	210	84		SWF
	2800	OTTA	47 GB	1539	1541	7	3800	225		
	2650	DWIN	45 C	1539		12	140 D			
	606	SGMR	3 S	1540.1	1544.7	9.7	375	150		SWF
	4995	8CUL	46 C	1540.5	1541.5	5.5	20	7		
	1415	ATHN	3 S	1540.7	1542.3	19.7	165.6	49.7		
	1420	9CUL	46 C	1540	1541.5	8	231	77		
	930	BORC	41 F	1541.3	1541.8	.6	39	2		
	1420	ARCE	4 S/F	1541	1541.9	1.8				
	1420	ARCE	30 PBI	1542.8		25.5				
	1420	ARCE	40 F	1543.1	1544.9	2.6				
	2800	OTTA	29 PBI	1546	1546	30	10.8	3.6		
	10500	BERN	20 GRF	1548.9	1541.7	28	22			
	4995	SGMR	45 C	1617	1632.4	54	15.5	6.2		
	4995	SGMR	45 C	1617	1659.8		25.4			
	2695	SGMR	45 C	1620.3	1659.4		14.9			
	2695	SGMR	45 C	1620.3	1626.9	50.7	5.7	2.3		
	606	SGMR	1 S	1621.2	1623.5	3.3	8.5	3.4		
	1415	SGMR	20 GRF	1621.6	1625.1	21.6	5.4	2.2		
	2800	OTTA	21 GRF	1654	1708	65	4	2		
	2800	OTTA	1 S	1658	1700	4	5.6	2.8		
	2800	OTTA	20 GRF	1925	1936	25	3.2	1.6		
	2695	PENT	240 R	2015	2050	35	4.2	2.1		
	500	HIRA	46 C	2206.5	2212	11	100	30		WL
	606	SGMR	3 S	2206.7	2212.5	10.3	179.2	71.7		
	245	SGMR	7 C	2206.8	2211.1	15.2	394.8	157.9		
	245	SGMR	7 C	2206.8	2218.2		96.4			
	410	SGMR	7 C	2206.9	2212.6	15.6	263.4	105.4		
	410	SGMR	7 C	2206.9	2217.3		156.6			
	1420	9CUL	42 SER	2206	2211.5	16.5	335	112		
	1415	SGMR	45 C	2207.4	2207.9	20.4	29.4	148.6		
	1415	SGMR	45 C	2207.4	2212.2		371.5			
	1415	SGMR	45 C	2207.4	2215.7		158.5			
	200	HIRA	41 F	2207.5	2212	9	3000			WL
	208	VORO		2207	2216		175			
	208	VORO	42 SER	2207	2209	10	39			
	208	VORO		2207	2212		400 D			
	4995	8CUL	45 C	2210.5	2211.5	12	44	15		
	9400	HUAN	3 S	2211	2212.5	2.4	152.2	28.2		R
	15400	SGMR	3 S	2211.5	2212.2	10.5	108.8	43.5		
	8800	MANI	4 S/F	2211.5	2212.3	3.2	168.1	112.1		
	2695	MANI	4 S/F	2211.5	2212.4	6.1	20.9	13.9		
	4995	MANI	4 S/F	2211.6	2212.4	6.1	44.5	29.6		
	2695	PENT	46F C	2211.6	2212.5	11	28.8	5.8		
	606	MANI	4 S/F	2211.9	2212.3	8.3	137.8	91.9		
	1415	MANI	4 S/F	2212	2212.3	6.5	297.5	198.3		
	2695	8CUL	3 S	2212 E	2213	5.50	26	9		
	700	SYDN	45 C	2214.6	2215.7	2.2				
	700	SYDN	29 PBI	2216.8	2216.8	5.8				
	2695	PENT	20 GRF	2305	2318	55	5.6	2.8		
26	208	VORO	4 S/F	0110	0111.5	2	140			
	5730	IRKU	1 S	0224.5	0225.2	2.5	7	3		R
	5730	IRKU		0530	0553.5		13			R
	5730	IRKU	21 GRF	0530	0538.5	17	21	9		R
	3100	CRIM	1 S	0532	0539	20	10	3		
	2695	ATHN	20 GRF	0532.3	0538.7	31.2	10.8	6.5		
	4995	ATHN	20 GRF	0532.3	0538.7	31.2	44.4	26.7		
	1400	SYDN	32 ABS	0533	0533.3	1.7				
	700	SYDN	45 C	0533.2	0535	2.5				
	1400	SYDN	2 S	0534.7	0534.8	.7				
	9100	GORK	1 S	0552.4	0553.5	2.9	6.5	3		
	3000	BERL	20	0716	0745	49	7.4			
	4995	ATHN	1 S	0742.3	0744.6	6.9	8.1	4.8		
	3100	CRIM	1 S	0743	0745	12	4	1		

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	237	TRST	41	F	0750.2	0750.4	.4	365			5L
	234	POTS	45	C	0750.3	0750.4	.2	140	1		
	202	IZMI	4	S/F	0750.3	0750.5	.5	120	60		
	113	POTS	45	C	0750.4	0750.4	.2	200	20		
	260	ONDR	8	S	0750.8	0750.8	.3	64			
	1470	BERL	3	S	0750	0750.3	1.5	14			
	237	TRST	41	F	0911	0911.1	.2	145			8R
	260	ONDR	8	S	0911	0911	.3	34			
	4995	ATHN	1	S	0927.1	0928.8	4.6	8.1	4.8		
	9100	GORK	2	SF	0928.1	0929.1	2.8	10.9	5		
	8800	ATHN	3	S	0928.4	0929.1	3.3	10	6		
	260	ONDR	8	S	0948.8	0948.8	.3	24			
	245	SGHR	44	NS	0950 E	1635.5	823 D	35.2			3
	410	SGHR	44	NS	0950 E	1112.4	823 D	97.7			3
	8800	ATHN	3	S	1038.4	1041.7	5.8	27.7	16.6		
	4995	ATHN	20	GRF	1038.8	1048.3	22.5	19.5	11.7		
	10500	BERN	4	S/F	1039.4	1041.5	5	18.6			
	2695	ATHN	1	S	1039.4	1041.7	6.4	3.2	1.9		
	9100	GORK	2	SF	1041	1041.8	4.7	24	10		
	408	TRST	42	SER	1110.9	1114.2	3.5	150 D			
	9100	GORK	2	SF	1112	1114.1	6	12	6		
	3100	CRIM	3	S	1127	1131	18	26	9		
	9100	GORK	2	SF	1136.4	1138.8	4.4	5	2.5		
	10500	BERN	46	C	1222.1	1222.6	2	17			
	260	ONDR	8	S	1228.8	1228.8	.3	47			
	930	BORD	8	S	1240	1240.4	.4	20	2		
	2800	OTTA	240	AR	1245	1310	25	3.2	1.6		
	930	BORD	41	F	1251	1252.6	2	15	2		
	2800	OTTA	1	S	1300	1300.5	3	3.4	1.1		
	9500	BERL	3	S	1327	1327.5	1	31			
	4995	ATHN	20	GRF	1340.1	1348	36.3	15.2	4.6		
	2800	OTTA	40	F	1340.5	1342.5	8.5	2.8			
	2695	ATHN	20	GRF	1340.6	1342.3	26.2	5.3	1.6		
	2800	OTTA	21	GRF	1340	1353	20 D	2.2			
	9400	HUAN	21	GRF	1341.1	1349.8	17.2	15.7	6		D
	8800	ATHN	3	S	1342.8	1348	7.3	11.1	3.3		
	9500	BERL	20		1342	1347.8	18	16			
	10500	BERN	20	GRF	1343.9	1348.1	10.5	15			
	1415	ATHN	1	S	1344.8	1344.9	.4	3.2	1		
	9400	HUAN	3	S	1347.3	1348.2	1.5	18.8	8.2		D
	9100	ARCE	1	S	1348	1348.2	3.4				RECORDDISTURBED
	2800	OTTA	20	GRF	1430	1455	120	4.8	2.4		
	4995	ATHN	1	S	1450.2	1456	7.4	6.5	2		
	8800	ATHN	1	S	1454.5	1456.3	2.7	5.5	1.7		
	1420	ARCE	40	F	1630.5	1631.2	1.3				
	930	BORD	41	F	1630	1631	7	17	3		
	2800	OTTA	2	S/F	1636	1636.7	1.5	1	.5		
	8800	SGHR	3	S	1855.6	1856.3	3.6	23	9.2		SWF
	9400	HUAN	4	SF	1855.7	1856.3	1.9	31.4	15.1		D
	15400	SGHR	3	S	1855.8	1856.3	3.1	15.4	6.2		SWF
	2695	SGHR	1	S	1855.9	1856.3	7.2	9.3	3.7		SWF
	4995	SGHR	3	S	1855.9	1856.3	5.2	13.2	5.3		SWF
	2800	OTTA	2	S/F	1856	1856.3	2	8.4	2.4		
	9400	HUAN	29	PBI	1857.6	1857.6	5.4	15.7	7.1		D
	9400	HUAN	21	GRF	1921	1957.1	38.8	25.1	13.6		D
	9400	HUAN	1	S	1940.3	1940.6	.8	18.8	2.2		R
	2800	OTTA	3	S	1940.5	1940.7	1	13.2	6.6		
	2800	OTTA	21	GRF	1940	2000	125	9	4.6		
	4995	BCUL	46	C	1940	1943.5	6.5	46	15		
	9400	HUAN	4	SF	1942.6	1943.9	2.9	31.4	12.9		R
	2800	OTTA	46F	C	1942.9	1943	1.5	6.2	3.1		
	245	SGHR	7	C	1954.4	1955.2	1.6	351	140		SWF
	410	SGHR	6	S	1955	1955.3	1	96.6	38.6		SWF
	606	SGHR	3	S	1955.3	1955.4	.7	48.6	19.4		SWF
	4995	BCUL	3	S	1955.5	1957	2.5	19	6		
	2800	OTTA	1	S	1956	1957.2	3	5	2.2		
	1420	BCUL	1	S	1957	1958	3.5	1	.3		
	2695	PENT	20	GRF	2215	2310	135	5.8	3.2		
27	1420	BCUL	45	C	0008.5	0012.5	29	170	57		
	4995	BCUL	45	C	0034.5	0035.5	6.5	22	7		
	1420	BCUL	8	S	0034	0035.5	2.5	99	33		
	1400	SYDN	45	C	0035	0036.2	3.3				
	100	HIRA	46	C	0035	0036	2	25000	5000		WL
	2695	PENT	45	C	0035.8	0036	6	7.8			
	700	SYDN	29	PBI	0036.2	0036.5	4.5				
	1400	SYDN	20	GRF	0038.4	0039.7	3				
	1420	BCUL	8	S	0050.5	0051.5	2.5	9	3		
	4995	BCUL	8	S	0050	0051	2.5	83	28		
	700	SYDN	20	GRF	0051	0052.2	2.6				
	500	HIRA	46	C	0051.1	0052.2	2.6	8	3		WL
	1400	SYDN		GRF	0051.3	0051.8	2.5				
	2695	PENT	4	S/F	0051.3	0052.2	2	13.4	6.7		
	700	SYDN	40	F	0305.8	0310	8				
	200	HIRA	7	C	0306.5	0307.5	1.5	200	50		WL

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	1415	MANI	4 S/F	0306.9	0306.5	4.6	116.8	77.8		
	100	HIRA	7 C	0307	0307.3	1	350	100		WL
	1400	SYDN	45 C	0307.1	0308.7	7				
	500	HIRA	46 C	0307.2	0310.5	6.5	5	2		WL
	5730	IRKU	2 S	0307.5	0311	8	23	8		R
	2695	MANI	4 S/F	0308.3	0309.2	1.4	39.7	26.5		
	606	MANI	4 S/F	0309.4	0309.8	1.3	13.6	8.7		
	950	GORK	2 SF	0447.5	0447.9	1.5	11.5			
	8800	ATHN	3 S	0451.3	0453	10	25.4	7.6		
	4995	ATHN	3 S	0451.3	0453	10.7	30.4	9.1		
	2695	ATHN	3 S	0452.4	0453	3.4	10.6	3.2		
	5730	IRKU	1 S	0452.5	0452.8	1	20	6		L
	9100	CORK	1 S	0452.6	0453.1	1.2	22			
	650	GORK	1 S	0452.9	0453.1	.7	3.5			
	2950	GORK	1 S	0453.2	0453.5	1	12	6		
	700	SYDN	4 S	0535.5	0536	.7				
	9100	GORK	1 S	0811.6	0812	2.4	12	6		
	536	ONDR	2 S/F	0812.5	0813	1.5	14			
	234	POTS	45 C	0813.1	0813.1	.3	12000	600		
	113	POTS	45 C	0813.1	0813.3	.4	150	10		
	237	TRST	41 F	0813.1	0813.2	.3	4100			30L
	202	IZMI	4 S/F	0813.2	0813.3	.7	150	130		
	260	ONDR	8 S	0813.2	0813.2	.3	28			
	9100	GORK	1 S	0909.8	0910.2	2.1	7.5	3		
	2650	DWIN	45 C	0954	1004	15	30	5		
	3000	BERL	21	0954	1014.4	23	21			
	9500	BERL	21	0957	1014	28	34			
	10700	DWIN	45 C	1000	1004	5	15			
	10500	BERN		1003	1014.5		40			
	10500	BERN	41 F	1003	1010.8	13	34			
	2695	ATHN	3 S	1003.7	1013.8	18.1	19.3	5.8		
	9100	GORK	1 S	1004.5	1005	.7	11	5.5		
	2950	GORK	23 GRF	1004.5U	1007.3	13.6	11.6			
	4995	ATHN	3 S	1005.9	1014.1	13.4	25.3	7.6		
	9100	ARCE	21 GRF	1009.1	1012.8	8				
	245	SGMR	6 S	1009.6	1013.2	8.4	213.3	42.7		3G
	8800	ATHN	3 S	1009.8	1014.1	5.6	38.8	11.6		
	202	IZMI	41 F	1010	1014	7	300			
	260	ONDR	41 F	1010.3	1012.7	8.5	105	7.7		
	9100	ARCE	3 S	1010.7	1010.9	1.6				
	9100	GORK	29 PBI	1010.8	1015.7	65	13	5		
	113	POTS	2	1010.8	1013.8	3.9	850	5		
	9100	GORK	45 C	1010.8	1011.1	4.9	42	13		
	9100	GORK		1010.8	1014.9		42			
	208	GORK	45 C	1010.9	1013	48	36			
	200	GORK		1010.9	1014		530			
	410	SGMR	7 C	1011.5	1011.9	3.5	370	147.8		3G
	1415	ATHN	3 S	1011.9	1013.8	2.8	18.4	5.5		
	100	GORK	41 F	1011	1011.3	5.5	220			
	100	GORK		1011	1014		7140			
	3100	CRIM	1 S	1012	1012.5	1	8	3		
	1420	ARCE		1012.3	1012.5	1.7				
	1420	ARCE	46 C/F	1012.3	1014.1	5.5				
	808	ONDR	8 S	1012.3	1012.3	.2	38			
	408	TRST	45 C	1012.4	1012.6	.5	220 D			
	237	TRST		1012.5	1013.3		220			12L
	237	TRST	42 SER	1012.5	1012.6	2.5	75			10L
	237	TRST		1012.5	1014.5		90			9L
	237	TRST		1012.5	1013.7		355			15L
	536	ONDR	8 S	1012.5	1012.5	.3	182			
	1415	SGMR	3 S	1012.6	1014.3	4.4	25.1	5		3G
	234	POTS	2	1012.6	1013.8	2.1	120	1		
	606	SGMR	3 S	1012.6	1012.8	.3	63.5	25.4		3G
	650	GORK	8 S	1012.7	1012.8	.3	21	10.5		
	1470	BERL	4	1012	1014	9	15			
	3100	CRIM	1 S	1014	1014.5	2	9	3		
	9100	ARCE	3 S	1014.3	1014.6	1				
	2950	GORK	3 S	1014.6	1014.9	1.1	16.8			
	950	GORK	2 SF	1014.6	1015.6	1.3	18.2			
	1420	ARCE		1014	1014.1	3.8				
	2800	OTTA	240 R	1302	1335	33	2.6	1.3		
	2800	OTTA	1 S	1445.2	1446	1	1.2	.6		
	2800	OTTA	21 GRF	1455	1510	80	2	1.2		
	1420	ARCE	1 S	1604.2	1605.9	4.5				
	4995	BCUL	2 SF	1604.5	1605	2	12	4		
	8800	ATHN	4 S/F	1604.7	1606.1	2.9	182.8	54.8		
	4995	ATHN	3 S	1605.2	1606.3	1.6	10.6	3.2		
	2695	ATHN	1 S	1605.5	1606.3	1.3	8.3	2.5		
	1420	BCUL	1 S	1605	1606	1.5	5	2		
	2800	OTTA	3 S	1605	1606	2	12	3		
	2695	BCUL	1 S	1606 E	1607	4 D	5	2		
	2800	OTTA	20 GRF	1640	1713	65	2.6	1.3		
	2800	OTTA	24P R	1730		100	2.6			
	2800	OTTA	27F PF	1750		150	2.6	2.2		
	2800	OTTA	24 R	1750	1830	40	2.6	1.3		

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	2800	OTTA	26	FA	2010	2020	10	-2.6	-1.3		
	2800	OTTA	3	S	2042.1	2042.5	4	16	5		
	2800	OTTA	21	GRF	2045		35	4	3.1		
	2800	OTTA	1	S	2106	2107.5	3	3.2	1.5		
28	4995	BOUL	3	S	0008.5	0010.5	13	156	52		
	200	HIRA	46	C	0009	0010	4	300	70		O
	500	HIRA	46	C	0009.3	0010	16	1100	50		WL
	1400	SYDN	3	S	0009.5	0012.8	30.5				
	100	HIRA	46	C	0009.5	0010	6	1000	200		WL
	208	VORO	46	C	0009.5	0010.5	6	78			
	208	VORO			0009.5	0013		455			
	700	SYDN	3	S	0009.7	0011.4	30.3				
	2695	MANI	4	S/F	0009.8	0010.7	13.2	251.1	167.4		
	606	MANI	4	S/F	0009.8	0013	9.5	119.6	79.7		
	1415	MANI	4	S/F	0009.8	0011.9	11.9	228.6	152.4		
	4995	MANI	4	S/F	0009.8	0010.7	10.4	308.6	205.7		
	2695	PENT	3	S	0009	0010.5	23	295	34		
	8800	MANI	4	S/F	0010	0010.7	6.2	212.1	141.4		
	35000	NAGO	5	S	0010	0010	1 D	23			
	2695	PENT	29	PBI	0032	0032	55	4.8	2.4		
	700	SYDN	45	C	0213.2	0213.5	.7				
	1400	SYDN	20	GRF	0213.2	0213.4	4				
	700	SYDN	29	PBI	0213.9	0214.5	2				
	700	SYDN	4	S	0222.4	0223	1				
	1400	SYDN	4	S	0223	0223.2	.3				
	200	GORK	43	NS	0357		408		5		
	221	ABST	44	NS	0500	0920	240	17			
	260	OHDR	44	NS	0815 E		487 D	131	10		
	245	SGMR	44	NS	0947 E	1816.8	828 D	98.8			3
	606	SGMR	43	NS	1614.7	1729.2	440.30	108.8			
	410	SGMR	43	NS	1730	1806.1	365 D	291.8			
	9100	GORK	23	GRF	0642	0655	66	15	8		
	10500	BERN	3	S	0642.8	0643.6	6	190			
	3100	CRIM	1	S	0643	0644	1.5	10	3		
	2950	GORK	20	GRF	0643	0643.7	16.1	18			
	4995	ATHN	4	S/F	0643	0643.8	8.1	71.7	21.5		
	8800	MANI	3	S	0643.1	0643.7	2.3	251.1	167.4		
	8800	ATHN	4	S/F	0643.2	0643.8	4.1	284	85.2		
	4995	MANI	3	S	0643.2	0643.9	5.6	48.7	31.9		
	2695	ATHN	1	S	0643.3	0643.8	1.1	9.9	3		
	9500	BERL	4		0643	0643.4	4	175			
	5730	IRKU			0643	0655		9			R
	10700	OWIN	3	S	0643	0644	3	70			
	5730	IRKU	45	C	0643	0643.7	16	91	7		R
	3100	CRIM	30	PBI	0644	0702	77	9			
	9100	GORK	3	S	0645		3	143			
	3100	CRIM	1	S	0648	0648.5	1.5	2	1		
	3100	CRIM	1	S	0655	0656.5	1.5	3	1		
	930	BORO	41	F	0719.5	0719.5	.5	287	3		
	10700	OWIN	3	S	0813	0813	2	9			
	9500	BERL	3	S	0816.5	0817.7	4.5	31			
	9100	GORK	2	SF	0816.7	0818	5	48	4.5		
	10500	BERN	3	S	0816.7	0818.8	4.5	32.6			
	8800	ATHN	3	S	0817.1	0818	4.5	37.1	11.1		
	9100	ARCE	3	S	0817.6	0818.2	2.6				
	237	IRST	41	F	0822	0822.5	1	148			3L
	930	BORO	8	S	0926.7	0926.7	.1	13	2		
	4995	ATHN	45	C	0937.8	0940.3	23.5	10.6	3.2		
	4995	ATHN	45	C	0937.8	0950.1		10.6			
	8800	ATHN	40	F	0939.4	0940.4	26.7	15.9	8		
	2695	ATHN	1	S	0940.1	0940.3	2.2	5.7	3.4		
	930	BORO	41	F	1101.9	1102	1.1	20	2		
	15400	SGMR	3	S	1156.2	1200.7	6.9	14.4	5.8		
	2695	SGMR	1	S	1201	1202.9	2.6	8.6	3.5		
	4995	SGMR	1	S	1201	1201.7	2.1	7.3	2.9		
	245	SGMR	6	S	1201.2	1201.8	2.2	36	14.4		
	410	SGMR	6	S	1201.4	1203	2.2	11.4	4.6		
	113	POTS	2		1201.4	1201.7	2	700	3		
	1415	SGMR	1	S	1201.4	1202.1	1.8	3.2	1.3		
	1420	ARCE	2	S/F	1201	1201.8	2				
	9500	BERL	1	S	1201	1201.5	1	4.3			
	2800	OTTA	1	S	1201	1201.9	2	4.8	2		
	3000	BERL	3	S	1201	1201.5	2	9.7			
	1470	BERL	1	S	1201	1201.7	2.8	4.3			
	8800	SGMR	3	S	1202	1202.5	1.4	16	6.4		
	1420	ARCE	29	PBI	1203		34.5				
	2800	OTTA	22	GRF	1205	1220	45	7	3.5		
	9100	ARCE	28	PRE	1246.1	1318.2	32.8				
	8800	ATHN	47	GB	1257.6	1328.9	209.4	8728	2618		
	4995	BOUL	49	GB	1300	1332.5	205	3195	1065		
	2695	ATHN	47	GB	1303.4	1354.8	215.8	18318	5495		
	4995	ATHN	47	GB	1303.8	1332.7	205.1	6259	1878		
	4995	ATHN	47	GB	1303.8	1342.9		4159			
	3000	BERL	49	GB	1305	1353	165 D	3300 D			

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APR 1978	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} MEAN	INT	POLARIZATION OR REMARKS
	4995	SGMR	47 GB	1306.7	1324.8	103.5	3550	1632		CONT,SWF
	4995	SGMR	47 GB	1306.7	1341.5		2860			CONT,SWF
	4995	SGMR	47 GB	1306.7	1332.4		4080			2,4,5,
	4995	SGMR	47 GB	1306.7	1353.5		1800			2,4,5,
	1420	ARCE	28 PRE	1308.3		6.9				
	2695	SGMR	47 GB	1308.5	1324.3	99.2	3130	8840		CONT,SWF
	2695	SGMR	47 GB	1308.5	1354.5		22100			CONT,SWF
	2695	SGMR	47 GB	1308.5	1341		2810			2,4,5,
	2695	SGMR	47 GB	1308.5	1358.4		2970			2,4,5,
	2800	OTTA	47 GB	1308	1354.5	75	24000	1500		
	10500	BERN	47 GB	1309.7	1702	232	6560.6			
	9400	HUAN		1310.5	1329.9		6442			
	9400	HUAN	47 GB	1310.5	1328.6	73.8	6464	2240		R
	8800	SGMR	47 GB	1310.6	1328.7	92.9	7530	3012		CONT,SWF
	8800	SGMR	47 GB	1310.6	1353.5		2410			CONT,SWF
	8800	SGMR	47 GB	1310.6	1404		980			2,4,5,
	8800	SGMR	47 GB	1310.6	1341.5		3410			2,4,5,
	2695	BCUL	49 GB	1310 E	1355.5	79.5D	20776	6925		
	9500	BERL	49 GB	1312.5	1328.4	158 D	5560			
	1415	SGMR	47 GB	1313.3	1342.2	95.7	5500	8448		CONT,SWF
	1415	SGMR	47 GB	1313.3	1404		16200			CONT,SWF
	1415	SGMR	47 GB	1313.3	1408.7		21100			2,4,5,
	1415	SGMR	47 GB	1313.3	1358.5		4340			2,4,5,
	1470	BERL	49 GB	1313	1355.7	157 D	2320 D			
	2650	OWIN	49 GB	1313		180	140 D			
	10700	OWIN	49 GB	1313		150	200 D			
	1420	BCUL	49 GB	1314.5E	1408.5	79 D	11790	3930		
	606	SGMR	47 GB	1314.9	1320.1	89.1	20500	9520		CONT,SWF
	606	SGMR	47 GB	1314.9	1404		1200			2,4,5,
	606	SGMR	47 GB	1314.9	1332		23800			2,4,5,
	606	SGMR	47 GB	1314.9	1340.5		4380			CONT,SWF
	930	BORO	47 GB	1314	1330.6	66	26978			
	930	BORO		1314	1320		3608			
	930	BORO		1314	1321.7		3198			
	930	BORO		1314	1327.7		8446			
	930	BORO		1314	1329.7		25994			
	930	BORO		1314	1355		1680			
	930	BORO		1314	1359		1680			
	930	BORO		1314	1404.3		5330			
	930	BORO		1314	1405.8		1804			
	930	BORO		1314	1408.7		1680			
	930	BORO		1314	1409.3		2050			
	930	BORO		1314	1411.5		2460			
	15400	SGMR	47 GB	1315	1329.5	85.8	4580	1832		CONT,SWF
	15400	SGMR	47 GB	1315	1342.5		1710			2,4,5,
	15400	SGMR	47 GB	1315	1353		873			CONT,SWF
	15400	SGMR	47 GB	1315	1404		519			2,4,5,
	1415	ATHN	47 GB	1315.1	1408.3		65896			
	1415	ATHN	47 GB	1315.1	1358.7	202.1	46320 1	9769		
	1420	ARCE		1315.2		7.8				
	1420	ARCE	47 GB	1315.2		65				
	808	ONDR	49 GB	1315		145	606	482		
	260	ONDR	49 GB	1316.5		186	209	104		
	234	POTS	45 C	1316.5	1322	154 D	14000 D			
	35000	SGMR	47 GB	1316.8	1329.1	84.6	1856	742		2,4,5,
	35000	SGMR	47 GB	1316.8	1342.5		652			CONT,SWF
	35000	SGMR	47 GB	1316.8	1353		286			2,4,5,
	536	ONDR	49 GB	1316		174	422	354		
	418	SGMR	48 GB	1317.1	1334	93.4	20200	4760		CONT,SWF
	245	SGMR	48 GB	1317.1	1322.4	92.9	142000 7	2000		CONT,SWF
	418	SGMR	48 GB	1317.1	1340.8		1750			2,4,5,
	245	SGMR	48 GB	1317.1	1338		5400			CONT,SWF
	245	SGMR	48 GB	1317.1	1341		4560			2,4,5,
	245	SGMR	48 GB	1317.1	1332.5		3360			2,4,5,
	228	HARS	47 GB	1317.2	1335 U	105	3084 D	934 D		
	237	TRST	42 SER	1317.2	1317.3	3	360			66L
	237	TRST		1317.2	1320.3		745			14L
	237	TRST		1317.2	1318.4		10100			76L
	9100	ARCE	47 GB	1318.9	1331.5	51.4				
	9100	ARCE		1318.9	1331.5	21.6				
	113	POTS	45 C	1318	1329	152 D	6000			
	127	TORN	49 GB	1320	1321.7D	90 D	1500 D			SATURATION
	237	TRST		1321.1	1323.2		143600			D
	237	TRST	47 GB	1321.1	1321.8	227.9	21500			6L
	237	TRST		1321.1	1337.5		4000			95L
	1420	ARCE		1323		13				
	1420	ARCE		1336	1340.6	15				
	9100	ARCE		1340.5	1342.4	10.4				
	9100	ARCE		1350.9	1353.4	10.8				
	1420	ARCE		1351		10				
	9100	ARCE		1401.7	1403.5	8.6				
	1420	ARCE		1401		19.2				
	9100	ARCE	30 PBI	1410.3		150				
	1420	ARCE	30 PBI	1420.2		160				
	930	BORO		1420	1440		426			

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APR 1978	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	POLARIZATION OR REMARKS
	930	BORO	42 SER	1420	1525	148	513	43		
	930	BORO		1420	1605		123			
	930	BORO		1420	1423		205			
	2800	OTTA	30 PBI	1423	1423	515	81	23		
	9400	HUAN	30 PBI	1424.3	1424.3	482.2	149.4	38.9		R
	2800	OTTA	4 S/F	1433	1440	13	13.8	8.3		
	1420	ARCE	4 S/F	1436.5	1440.5	7.5				
	2800	OTTA	2 S/F	1449	1453	7	6.4	2.9		
	1420	ARCE	40 F	1451.4	1454.2	4				
	1420	ARCE	46 C/F	1502.3	1524.3	42				
	1420	ARCE		1502.3	1507.1	12.4				
	9100	ARCE	22 GRF	1502.4	1522.6	36.5				
	606	SGMR	45 C	1503.1	1519.1	71.6	1790	1880		CONT,SWF
	606	SGMR	45 C	1503.1	1600.8		208.3			CONT,SWF
	606	SGMR	45 C	1503.1	1527		4700			CONT,SWF
	410	SGMR	7 C	1503.3	1524.5	78.5	288	115.2		CONT,SWF
	410	SGMR	7 C	1503.3	1603.3		161.9			CONT,SWF
	1420	BCUL	20 GRF	1503.5E	1524	70 D	104	35		
	1415	SGMR	20 GRF	1504.5	1524.2	68.9	114	45.6		CONT,SWF
	4995	SGMR	20 GRF	1505.6	1523.4	76.9	139	55.6		CONT,SWF
	9400	HUAN	20 GRF	1505.9	1522.7	31.1	29.2	6		R
	2695	SGMR	20 GRF	1506.1	1522.9	75.9	44.1	17.6		CONT,SWF
	8800	SGMR	20 GRF	1506.5	1522.9	63.5	27.3	10.9		CONT,SWF
	2800	OTTA	45 C	1506	1523	33	96	34		
	2695	BCUL	20 GRF	1507 E	1525	64	123	41		
	1420	ARCE		1514.7	1524.3	29.6				
	15400	SGMR	20 GRF	1514.7	1523.2	57.3	18.1	7.2		CONT,SWF
	245	SGMR	6 S	1515	1524.5	67	18.7	9.9		CONT,SWF
	245	SGMR	6 S	1515	1559.9		24.7			CONT,SWF
	18	MCMA	41 F	1519	1536	48			1	
	1420	ARCE	20 GRF	1548.4	1602.8	23				
	1420	ARCE		1548.4	1555.8	11.5				
	2800	OTTA	45 C	1549	1604	21	20.4	12.8		
	1420	ARCE		1559.9	1602.8	11.5				
	606	SGMR	7 S	1623.8	1625.9	13.2	286	114		
	2800	OTTA	22 GRF	1624	1634	18	8	4		
	2800	OTTA	1 S	1652	1653	3	2.6	1.3		
	410	SGMR	6 S	1702.6	1715.5	14.8	222	88.8		
	2800	OTTA		1712	1714.5	5 D	6.4			
	2800	OTTA	20 GRF	1722	1734	26	6.4	3.8		
	2800	OTTA	23 GRF	1749	1755	13	4.2	2.1		
	2800	OTTA	1 S	1757.2	1757.5	1	3.2	1.6		
	2800	OTTA	1 S	1812	1812.5	2	2	1		
	2800	OTTA	22 GRF	1831	1841	22	6.4	3		
	2800	OTTA	21 GRF	1943	1946	25	3.2	1.8		
	2800	OTTA	2 S/F	2002.3	2002.5	3	4.2	2.4		
	2800	OTTA	20 GRF	2010	2025	25	2.8	1.6		
	208	VORO	20 GRF	2238	2245	12	6			
	208	VORO	42 SER	2340	2346	10	500 D			
	4995	BCUL	45 C	2341.5	2346	16	43	14		
	4995	MANI	3 S	2343.7	2346.6	10.1	26.1	17.4		
	606	MANI	1 S	2345	2345.3	.6	12.8	8.6		
	2695	BCUL	3 S	2410.5E	2411.5	23.5D	341	114		
29	208	VORO	4 S/F	0022	0023	2	65			
	5730	IRKU	2 S	0424	0425.5	9	15 -	4		R
	9100	GORK	20 GRF	0444.5	0446.3	12.7	9.5	5		
	221	ABST	44 NS	0500	1112	240	12			
	260	ONDR	44 NS	0640 E		520 D	30			
	245	SGMR	44 NS	0945 E	2208.3	832 D	98.6			3,5
	410	SGMR	44 NS	0945 E	2113	832 D	80.2			3,5
	9100	GORK	22 GRF	0753.1	0800.2	16	13			
	8800	ATHN	20 GRF	0758.7	0759.9	10.3	10.3	6.2		
	9500	BERL	20	0759	0759.5	11	7.3			
	3000	BERL	20	0801	0805.2	24	12			
	1420	ARCE	3 S	0902.2	0903.4	3				
	536	ONDR	41 F	0944.5	0945.4	2	143			
	536	ONDR	8 S	1052	1052	.3	33			
	113	POTS	48 C	1135.3	1144.4	9.7	200	1 E		
	202	IZMI	5 S	1135.3	1135.8	.7	330	145		
	237	TRST	41 F	1135.5	1135.6	.4	145			12L
	3000	BERL	20	1141	1155.5	29	13			
	9100	ARCE	20 GRF	1143.4	1147.2	42				
	9500	BERL	20	1145	1148	10	7.2			
	9100	ARCE	20 GRF	1455	1456.5	44				
	2800	OTTA	23 GRF	1545	1832	475	8.2			
	8800	SGMR	47 GB	1850.2	1914.5	110.2	4530	1812		2,3G,4,
	8800	SGMR	47 GB	1850.2	1937.6		3790			CONT,SWF
	606	SGMR	47 GB	1850.7	1936.5		200000			CONT,SWF
	606	SGMR	47 GB	1850.7	1946		35150			2,3G,4,
	606	SGMR	47 GB	1850.7	1900.5	104.3	17700 B	0000		CONT,SWF
	606	SGMR	47 GB	1850.7	1915.5		6150			2,3G,4,
	4995	SGMR	47 GB	1851	1914.7	114.9	2620	1620		2,3G,4,
	4995	SGMR	47 GB	1851	1937.5		4049			CONT,SWF
	2695	SGMR	47 GB	1852.3	1940		4440			2,3G,4,

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	2695	SGMR	47 GB	1852.3	1914.7	114.5	1330	1776		2,3G,4,
	2695	SGMR	47 GB	1852.3	1922		2140			CONT,S WF
	1415	SGMR	47 GB	1852.6	1914.5	116.6	1420	3188		CONT,SWF
	1415	SGMR	47 GB	1852.6	1941		8030			2,3G,4,
	2800	OTTA	47 GB	1852	1939	98	3585	916		
	1420	BCUL	49 GB	1854.5E	1940	99 D	6375	2125		
	2695	BCUL	49 GB	1855.5E	1940.5	96	5019	1673		
	15400	SGMR	47 GB	1855.7	1914.5	101.6	2550	1020		2,3G,4,
	15400	SGMR	47 GB	1855.7	1937		1680			CONT,SWF
	4995	BCUL	49 GB	1855	1937.5	106.5	3392	1131		
	410	SGMR	49 GB	1857	1903.7	118.3	5480 2	5098		CONT,SWF
	410	SGMR	49 GB	1857	1937.1		135000			CONTSWF
	410	SGMR	49 GB	1857	1917		4220			2,3G,4,
	245	SGMR	49 GB	1858.6	1913.8		6930			CONT,S WF
	245	SGMR	49 GB	1858.6	1906.7	114.1	1490	4520		2,3G,4,
	245	SGMR	49 GB	1858.6	1936.1		11300			2,3G,4,
	35000	SGMR	47 GB	1859.3	1914.5	96.1	1110	444		2,3G,4,
	35000	SGMR	47 GB	1859.3	1937		714			CONT,SWF
	18	MCMR	41 F	1905	1912	49 D			3	
	9400	HUAN		1926.4E	1937.4U		2999			
	9400	HUAN	47 GB	1926.4E	1934 U	60.7	2797	1582.9		L0R0L
	100	HIRA	48 C	1945 E		57 D				L, SUNRISE
	200	HIRA	48 C	1945 E		57 D				L, SUNRISE
	500	HIRA	48 C	1945 E		57 D				L, SUNRISE
	9408	HUAN	29 PBI	2027.1	2027.1	119.2	115.2	76		R
	2800	OTTA	30 PBI	2030	2030	190	22	7.4		
	2800	OTTA	2 S/F	2114.5	2116	6	9	4.5		
	2800	OTTA	21 GRF	2114	2126	50	3.2	1.6		
30	8800	ATHN	3 S	0453.2	0455.2	8.7	20.6	6.2		
	5730	IRKU	2 S	0453	0454	10	11	6		R
	9100	GORK	2 SF	0454.3	0455	4	19.6	9.5		
	2695	ATHN	1 S	0454.3	0455.2	5.4	5.2	1.6		
	4995	ATHN	3 S	0454.5	0455.2	3.9	10.8	3.2		
	650	GORK	4 SF	0454.5	0455	.8	52	22		
	2950	GORK	1 S	0454.6	0454.9	1	11	5.5		
	950	GORK	4 SF	0454.7	0455.1	.7	179			
	606	MANI	1 S	0454.8	0456	1.2	13.2	8.8		
	1415	MANI	1 S	0454.8	0455.6	.8	8.2	5.5		
	2695	MANI	1 S	0454.8	0455.6	.8	6	7		
	4995	MANI	1 S	0454.9	0456	1.1	7.9	5.3		
	1415	ATHN	1 S	0455.1	0455.2	4.1	3.5	1.1		
	260	ONDR	44 NS	0645 E		508 D	104	8		
	200	GORK	43 NS	0700		177		5		
	127	TORN	43 NS	0905 U	1010.8	385 D	160			V=1
	9500	BERL	43 NS	0922.5	0948.9	63	138			
	410	SGMR	44 NS	0944 E	1749.3	834 D	39.6			3,CONT
	245	SGMR	44 NS	0944 E	2105.8	834 D	280			3,CONT
	200	HIRA	44 NS	1945 E	0202	820 D	50	30		ML
	100	HIRA	44 NS	1945 E	0222	820 D	600	250		SL
	1415	ATHN	20 GRF	0710.4	0727.9	19.9	7.1	4.2		
	2695	ATHN	20 GRF	0715.7	0724.8	13.2	2.6	1.6		
	4995	ATHN	20 GRF	0718.2	0724.1	11.5	6.5	3.9		
	8800	ATHN	3 S	0718.8	0720.3	10.3	30.9	9.3		
	10500	BERN	3 S	0718.8	0720.1	3	19.8			
	9100	GORK	21 GRF	0719.2	0723.9	12.9	13	4.5		
	9100	GORK	1 S	0719.8	0720.2	1.2	25.2	12.4		
	9500	BERL	4	0719	0719.9	8	23			
	9100	GORK	1 S	0757.7	0757.8	.4	48	20		
	237	TRST	5 S	0808.9	0809	.1	75	20		28L
	202	IZMI	41 F	0809	0812	6.3	320			
	234	POTS	48 C	0809	0811.6	6	700	1 E		
	113	POTS	48 C	0809.1	0809.1	5.9	800	1 E		
	237	TRST	41 F	0811.6	0811.6	.2	1150			21L
	9100	GORK	1 S	0822.1	0822.6	1.5	9.8	4.5		
	9100	ARCE	21 GRF	0907.6	0938.9	90				
	9100	GORK	20 GRF	0916.5	0920.4	8.9	15	6.5		
	9100	GORK	2 SF	0934.2	0935.8	6.4	30	15		
	10500	BERN	33	0936.4	0938.7	8.5	25.7			
	9100	GORK	5 S	0945.1	0946.5	6.2	162	80		
	10500	BERN	4 S/F	0948.1	0949.3	10	139.6			
	1470	BERL	1 S	0948.2	0949.2	7.3	5.2			
	3000	BERL	3 S	0948.5	0948.9	2	18			
	1420	ARCE	1 S	0948.5	0949.3	1.6				
	1420	ARCE	21 GRF	0948.5		41				
	930	BORO	41 F	0948.6	0949	1.4	114	2		
	113	POTS	1 S	0948.8	0948.8	.1	200	70		
	8800	MANI	3 S	0948.8U	0949.4	1.9U	193.2	124.7		NSET
	8800	ATHN	3 S	0948.8	0949.5	6.7	164.8	98.9		
	4995	MANI	3 S	0948.8U	0949.5	1.9U	48.9	32.6		
	4995	ATHN	3 S	0948.8	0949.5	6.7	53.8	32.3		
	237	TRST	41 F	0948.8	0948.9	.1	98			20L
	2695	ATHN	3 S	0948.8	0949.5	6.7	15.5	9.3		
	9100	ARCE	4 S/F	0948.9	0949.5	3.5				
	202	IZMI	41 F	0948.9	0949	.8	210			

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

APRIL 1978

APR 1978	FREQUENCY	STATION	TYPE	STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	POLARIZATION OR REMARKS
	950	GORK	4 SF	0948.9	0949	.9	26			
	200	GORK	8 S	0949	0949.3	.9	38			
	2950	GORK	3 S	0949	0949.2	1	29	14.5		
	1415	ATHN	1 S	0949	0949.5	6.7	3.5	2.1		
	10700	DWIN	3 S	0949	0949	2	45			
	808	ONDR	4 S/F	0949	0949.5	1	187	30		
	2650	DWIN	3 S	0949	0949	2	10	5		
	10500	BERN	1 S	1015.3	1016	9.5	10.8			
	10500	BERN	1 S	1015.3	1020.7		13.6			
	1428	ARCE	8 S	1016.4	1016.5	.4				
	9500	BERL	1 S	1114.5	1115	2	5.8			
	3000	BERL	20	1118	1145.5	63	5.5			
	1470	BERL	20	1119	1131	28	1.7			
	9100	ARCE	20 GRF	1145.2	1145.5	23				
	4995	SGMR	20 GRF	1210.3	1221.8	19.1	8.6	3.4		
	9400	HUAN	21 GRF	1210.8	1225.2	38.2	8.4	1.6		R
	10500	BERN	45 C	1217.9	1222.3	11.5	28.6			
	8800	SGMR	20 GRF	1218.1	1222.4	11.2	32.9	13.2		
	8800	ATHN	3 S	1218.3	1222.5	14.7	44.4	26.6		
	9500	BERL	4	1218	1222.1	14	29			
	4995	ATHN	20 GRF	1219.2	1220.8	13.8	8.5	5.1		
	9100	ARCE	45 C	1219.3	1222.6	10.2				
	9400	HUAN	4 SF	1219.3	1220.7	5.9	20.1	16.6		D
	930	BORD	8 S	1219	1219.6	.6	25	2		
	3000	BERL	20	1320	1328.5	33	18			
	2800	OTTA	28 PRE	1321	1427	78	51			
	9400	HUAN	28 PRE	1322.8	1439.7	76.9	23.4	8.4		D
	9100	ARCE	20 GRF	1323.8	1328.9	35				
	1470	BERL	20	1323	1330	33	2.3			
	9500	BERL	20	1325	1328.5	35	5.1			
	1420	ARCE	22 GRF	1326.7	1327.7	4				
	2695	SGMR	47 GB	1412.8	1427.3	167.2	2860	1140		4,CONT,SWF
	2695	SGMR	47 GB	1412.8	1452		1350			4,CONT,SWF
	2695	SGMR	47 GB	1412.8	1446.5		1380			4,CONT,SWF
	2695	SGMR	47 GB	1412.8	1456.4		1450			4,CONT,SWF
	4995	SGMR	47 GB	1413.2	1444.6		2150			4,CONT,SWF
	4995	SGMR	47 GB	1413.2	1446.7		2370			4,CONT,SWF
	4995	SGMR	47 GB	1413.2	1428.5	160.2	2150	948		4,CONT,SWF
	10500	BERN	47 GB	1417.4	1446.4	200	1237.4			
	1470	BERL	49 GB	1417	1449.8	103 D	1380			
	3000	BERL	49 GB	1418.5	1458.2	102 D	1900			
	9500	BERL	49 GB	1418	1456	102 D	1840			
	8800	SGMR	47 GB	1419.2	1427.4	162.4	3670	1470		4,CONT,SWF
	8800	SGMR	47 GB	1419.2	1444.4		1570			4,CONT,SWF
	8800	SGMR	47 GB	1419.2	1445.3		1930			4,CONT,SWF
	1415	SGMR	47 GB	1419.7	1442.5		846			4,CONT,SWF
	1415	SGMR	47 GB	1419.7	1445		1130			4,CONT,SWF
	1415	SGMR	47 GB	1419.7	1428.4	154.3	1370	548		4,CONT,SWF
	2650	DWIN	49 GB	1420		130	110 D			
	1415	ATHN	47 GB	1421.2	1445	137.7	1289.1	386.7		
	1420	ARCE	28 PRE	1421.2		18				
	1415	ATHN	47 GB	1421.2	1542.6		1019			
	4995	ATHN	47 GB	1421.3	1447		2136.2			
	4995	ATHN	47 GB	1421.3	1444.9	137.8	1926.2	577.9		
	8800	ATHN	47 GB	1421.3	1446.6	137.4	2184.3	655.3		
	4995	BOUL	49 GB	1422	1447	113.5	1528	509		
	1420	BOUL	28 PRE	1422 E	1424	16.5D	44	15		
	2695	BOUL	28 PRE	1422 E	1428	17.5D	36	12		
	35000	SGMR	3 S	1423	1447	146	280	112		4,CONT,SWF
	9100	ARCE	29 PRE	1423.3	1428.6	16.6				
	930	BORD		1425	1446		950			
	930	BORD	PRE	1425	1458.8	45	1292	262		
	15400	SGMR	47 GB	1427.5	1444.4	133.7	703	372		4,CONT,SWF
	15400	SGMR	47 GB	1427.5	1446.7		931			4,CONT,SWF
	237	TRST	5 S	1428.5	1428.5	.1	165	45		23L
	237	TRST	47 GB	1433.2	1520.8	128.5	2300			100L
	1420	BOUL	49 GB	1438.5E	1542.5	140.5D	958	319		
	1420	ARCE	47 GB	1439.2	1444.5	87.1				
	1420	ARCE		1439.2	1444.5	11.5				
	2695	BOUL	49 GB	1439.5E	1459.5	144.5D	1514	505		
	9400	HUAN	47 GB	1439.7	1446.7	87.3	1046	512.2		R
	9100	ARCE		1439.9	1444.3	5.9				
	9100	ARCE	47 GB	1439.9	1446.8	28.6				
	2800	OTTA	47 GB	1439	1458.5	96	1265	381		
	606	SGMR	47 GB	1440	1452.8	135.5	8100	4280		4,CONT,SWF
	606	SGMR	47 GB	1440	1642.7		2320			4,CONT,SWF
	606	SGMR	47 GB	1440	1519.8		10700			4,CONT,SWF
	606	SGMR	47 GB	1440	1458.7		9570			4,CONT,SWF
	808	ONDR	49 GB	1440		33 D	606	512		
	536	ONDR	49 GB	1440		33 D	429	372		
	10700	DWIN	49 GB	1440		50	490			
	228	HARS	47 GB	1440	1521	100	704	240		
	234	POTS	45 C	1440	1521	100 D	700			
	237	TRST	41 F	1442.5	1443.3	1.1	665			14L
	113	POTS	45 C	1442	1446.5	98 D	28000			

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

APRIL 1978

APR 1978	FREQUENCY	STATION	TYPE		STARTING TIME UT	TIME OF MAXIMUM UT	DURATION MINUTES	FLUX DENSITY 10^{-22} Wm^{-2} Hz^{-1} PEAK	FLUX DENSITY MEAN	INT	POLARIZATION OR REMARKS
	260	ONDR	49	GB	1442		31 D	188	160		
	127	TORN	49	GB	1445.5F	1446.8	45 D	3000 U			INCOMPLT/SUNSET
	9100	ARCE			1445.8	1446.8	12.7				
	18	MCMA	41	F	1445	1503	54			3	
	245	SGMR	49	GB	1448.6	1453.6	123.9	828	664		4,CONT,SWF
	410	SGMR	49	GB	1448.6	1459	123.4	6320	6565		4,CONT,SWF
	410	SGMR	49	GB	1448.6	1628.5		238			4,CONT,SWF
	245	SGMR	49	GB	1448.6	1503.4		1290			4,CONT,SWF
	410	SGMR	49	GB	1448.6	1514.6		16413			4,CONT,SWF
	245	SGMR	49	GB	1448.6	1604		637			4,CONT,SWF
	245	SGMR	49	GB	1448.6	1513.5		1618			4,CONT,SWF
	410	SGMR	49	GB	1448.6	1522.5		5150			4,CONT,SWF
	245	SGMR	49	GB	1448.6	1459		1487			4,CONT,SWF
	1420	ARCE			1450.7	1458.7	17.7				
	1420	ARCE			1508.4	1512.2	9.9				
	9100	ARCE	29	PBI	1508.5	1509.5	105				
	930	BORD	47	GB	1510	1520.7	35	3496	722		
	930	BORD			1510	1524.4		1596			
	930	BORD			1510	1527		1254			
	930	BORD			1510	1528.7		1125			
	930	BORD			1510	1530.8		1254			
	930	BORD			1510	1533		1292			
	930	BORD			1510	1542.4		722			
	930	BORD			1510	1514.5		874			
	930	BORD			1510	1517.5		1368			
	930	BORD			1510	1522.5		1976			
	1420	ARCE			1518.3	1526.8	13.3				
	1420	ARCE			1531.6	1533.8	7.5				
	1420	ARCE			1539.1	1542.1	27.2				
	930	BORD		PBI	1545	1549	70	304	68		
	1420	ARCE	30	PBI	1606.3		50				
	9400	HUAN	30	PBI	1607	1607	179.9	63.6	16.7		R
	2800	OTTA	30	PBI	1615	1615	605	50	12.8		
	1420	ARCE	40	F	1621.5	1626.2	24.5				
	1420	ARCE	3	S	1639.9	1646.3	12				
	9400	HUAN	20	GRF	1640.7	1645.7	13.4	25.1	11.1		R
	2800	OTTA	4	S/F	1640	1646	14	35	13.3		
	2695	SGMR	20	GRF	1737	1745.3	34	12.5	5		CONT
	606	SGMR	20	GRF	1737.1	1746	32.9	16.4	6.6		CONT
	2800	OTTA	20	GRF	1737	1745	27	8.6	4.3		
	1420	BCUL	20	GFR	1741 E	1746	46 D	16	5		
	245	SGMR	48	GB	1957.6	1958.5	3.4	800	320		3,CONT
	606	SGMR	2	S	1958	1958.1	1	12.8	5.1		3,CONT
	410	SGMR	6	S	1958	1958.2	1.5	79.6	31.8		3,CONT
	2800	OTTA	1	S	2232.5	2235	8	9.6	4.8		
	2800	OTTA	21	GRF	2232	2244	45	6.4	3.2		

Reports received from the following observatories:

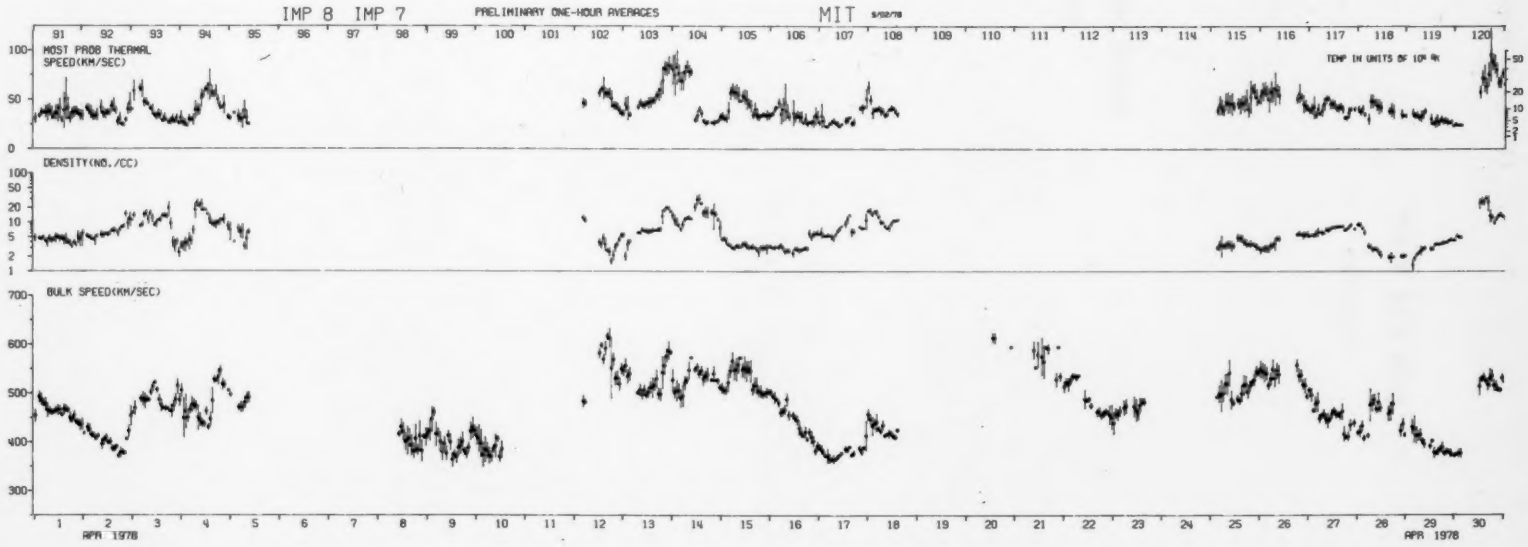
ARCE = Arcetri
BERL = Berlin-Adlershof
BORD = Bordeaux
BOUL = Boulder
CRIM = Simferopol
DWIN = Dwingeloo
GORK = Gorky
HARS = Harestua
HIRA = Hiraiso
HUAN = Huancayo
IRKU = Irkutsk
KIEV = Kiev
MANI = Manila
MCMA = McMath-Hulbert
NAGO = Nagoya
ONDR = Ondrejov
OTTA = Ottawa
PENT = Penticton
POTS = Potsdam
SAOP = Sao Paulo
SGMR = Sagamore Hill
SYDN = Sydney
TORN = Torun
TYKW = Toyokawa
TRST = Trieste
VORO = Voroshilov (Ussurisk)

Explanation of Type Code:

1 Simple 1
2 Simple 1F
3 Simple 2
4 Simple 2F
5 Simple
6 Minor
7 Minor +
8 Spike
20 Simple 3
21 Simple 3A
22 Simple 3F
23 Simple 3AF
24 Rise
25 Rise A
26 Fall
27 Rise and Fall
28 Precursor
29 Post Burst Increase
30 Post Burst Increase A
31 Post Burst Decrease
32 Absorption
40 Fluctuation
41 Group of Bursts
42 Series of Bursts
43 Onset of Noise Storm
44 Noise Storm in Progress
45 Complex
46 Complex F
47 Great Burst
48 Major
49 Major +

IMP 7 AND 8 SOLAR WIND PLASMA

APRIL 1978



MARCH 1978 DATA

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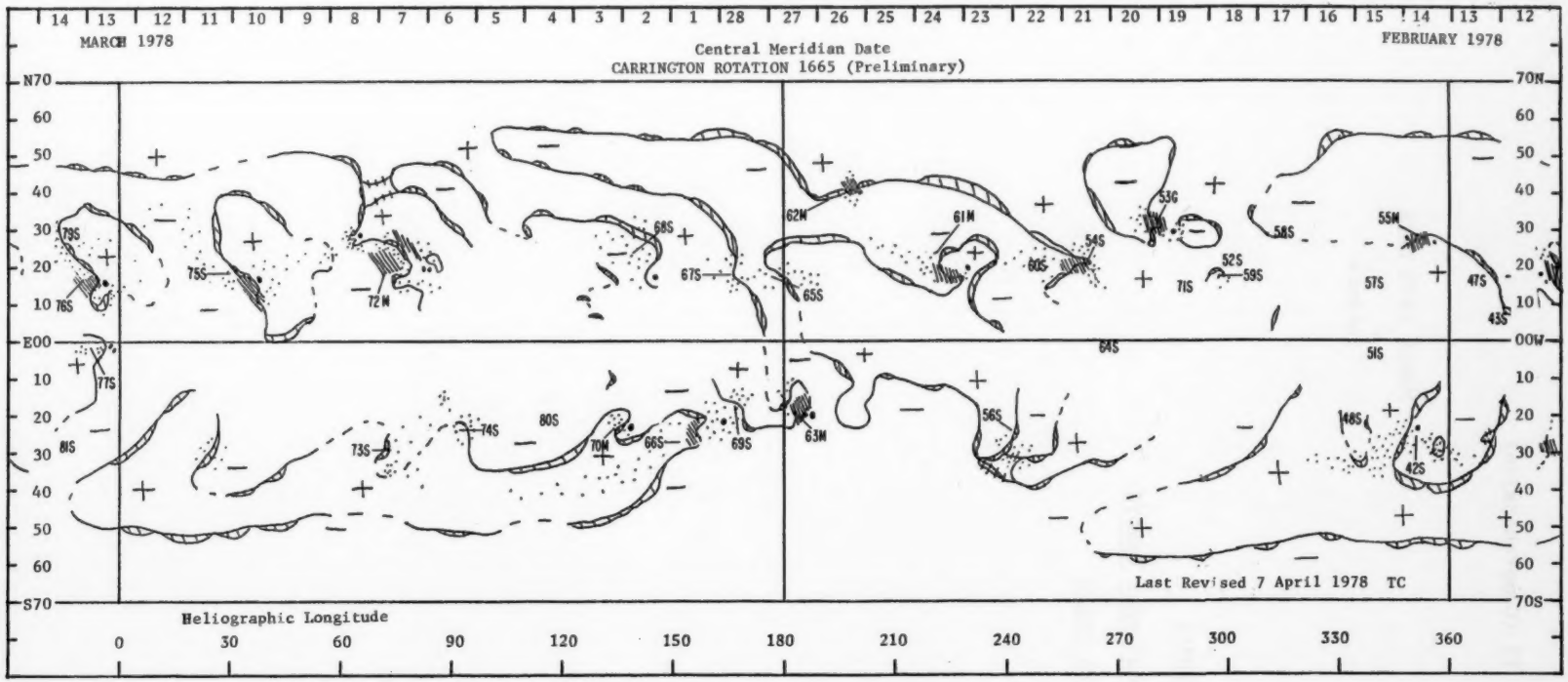
ABBREVIATED CALENDAR RECORD

Hα SYNOPTIC CHART

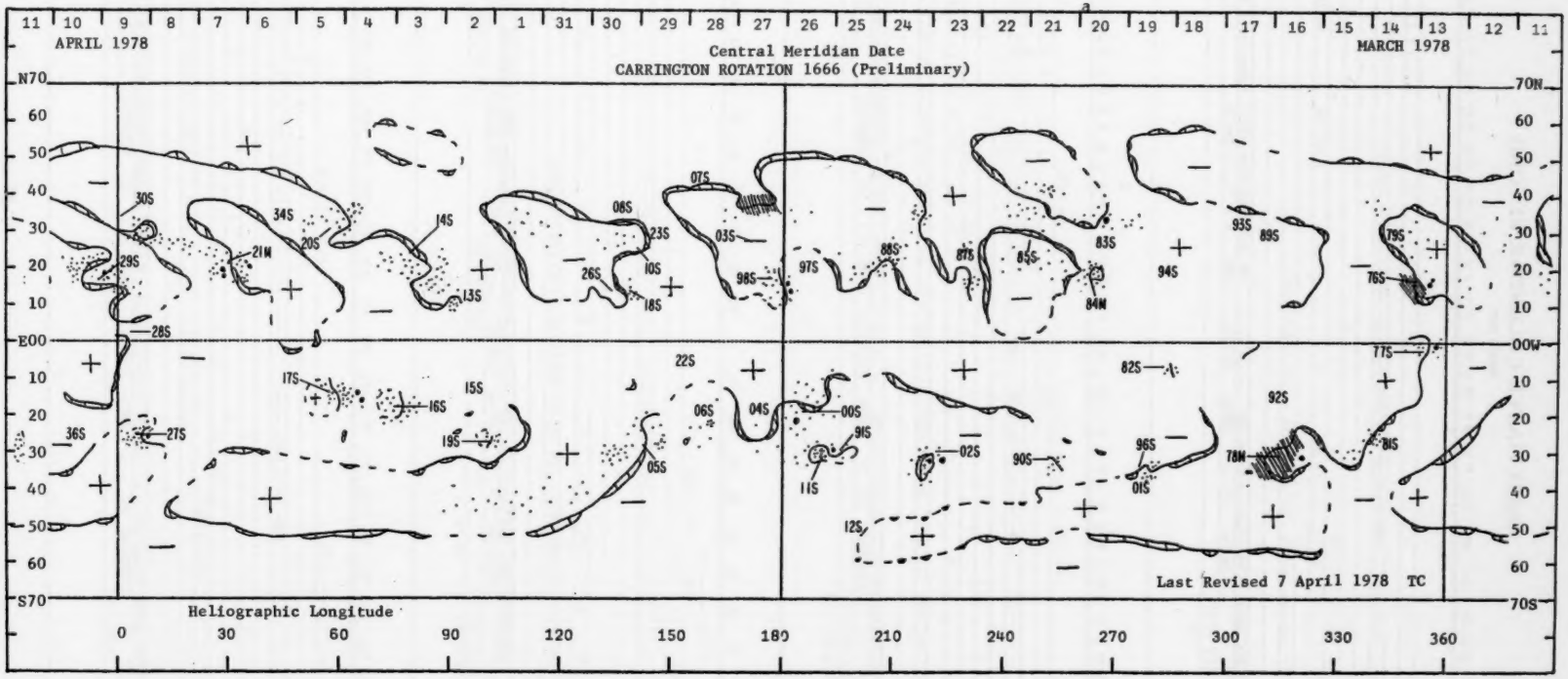
FEBRUARY - MARCH 1978



ABBREVIATED CALENDAR RECORD

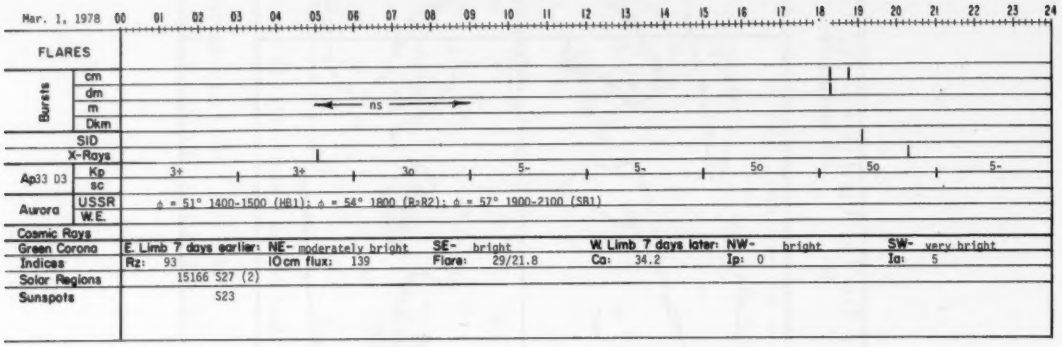
Hα SYNOPTIC CHART

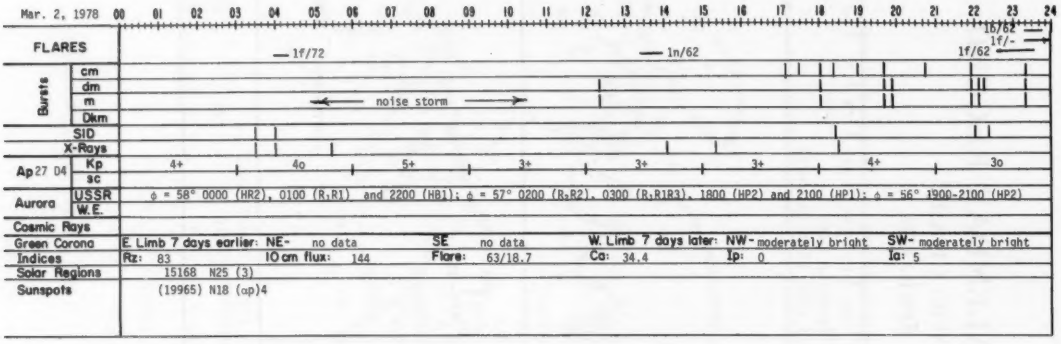
MARCH - APRIL 1978

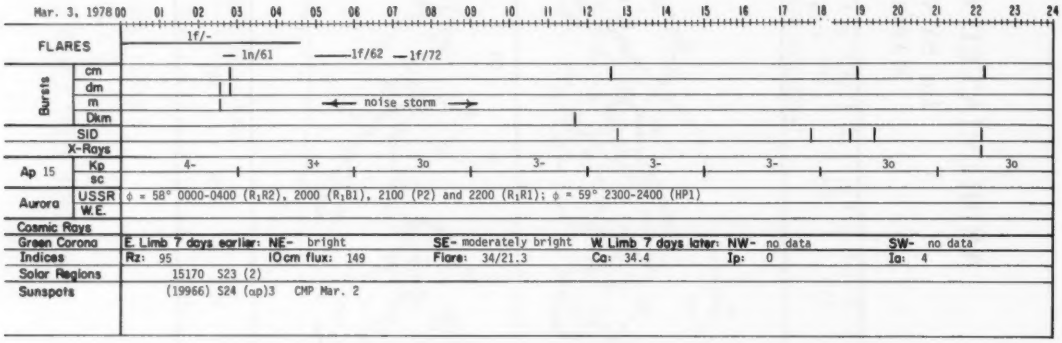


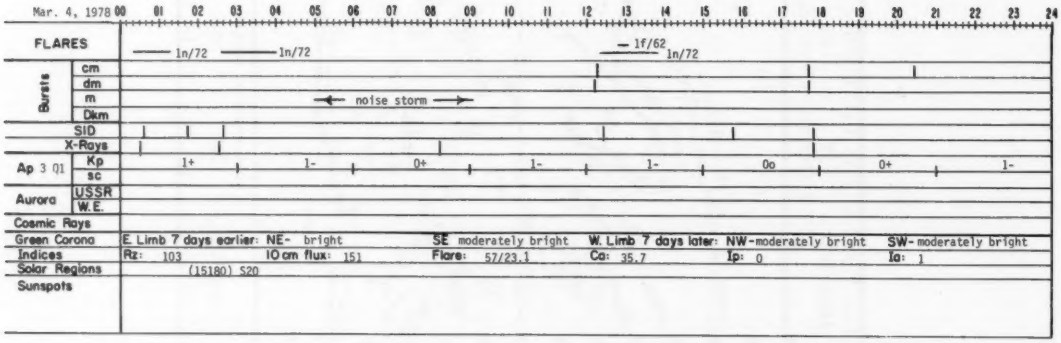
ABBREVIATED CALENDAR RECORD

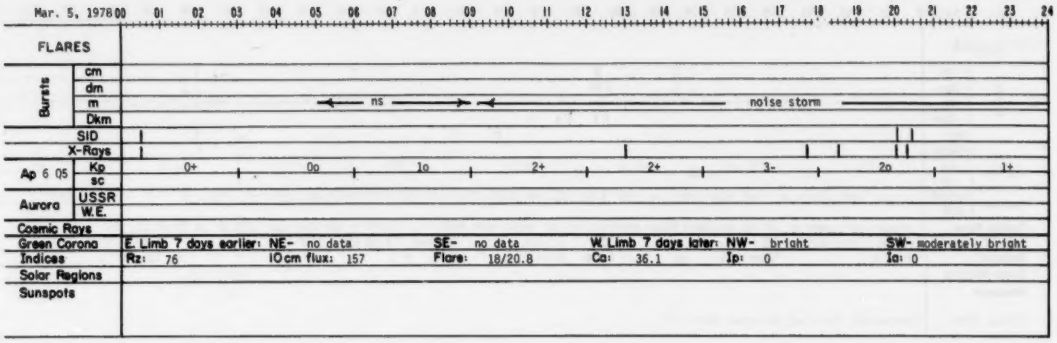
MARCH 1978

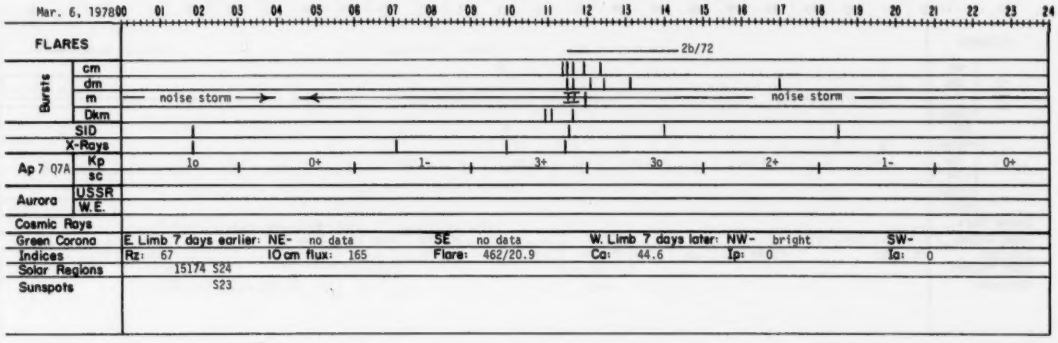

Mar. 1, 1978
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
Bursts
cm
dm
m
Dkm
ns
SID
X-Rays
Ap33 D3
Kp
sc
3+ 3+ 3o 5- 5- 5o 5o 5-
Aurora
USSR
W.E.
ϕ = 51° 1400-1500 (HB1); ϕ = 54° 1800 (R2R2); ϕ = 57° 1900-2100 (SB1)
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE- moderately bright SE- bright W. Limb 7 days later: NW- bright SW- very bright
Indices
Rz: 93 10cm flux: 139 Flare: 29/21.8 Ca: 34.2 Ip: 0 Ia: 5
Solar Regions
15166 S27 (2)
Sunspots
S23

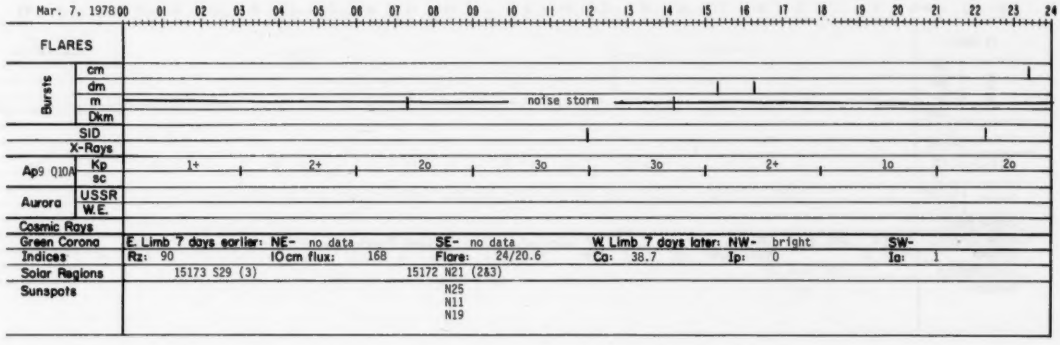

Mar. 2, 1978
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
1f/72
1n/62
1f/62
1f/-
Bursts
cm
dm
m
Dkm
noise storm
SID
X-Rays
Ap27 D4
Kp
sc
4+ 4o 5+ 3+ 3+ 3+ 4+ 3o
Aurora
USSR
W.E.
ϕ = 58° 0000 (HR2), 0100 (R1R1) and 2200 (HB1); ϕ = 57° 0200 (R2R2), 0300 (R1R1R3), 1800 (HP2) and 2100 (HP1); ϕ = 56° 1900-2100 (HP2)
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE- no data SE no data W. Limb 7 days later: NW- moderately bright SW- moderately bright
Indices
Rz: 83 10cm flux: 144 Flare: 63/18.7 Ca: 34.4 Ip: 0 Ia: 5
Solar Regions
15168 N25 (3)
Sunspots
(19965) N18 (αp)4

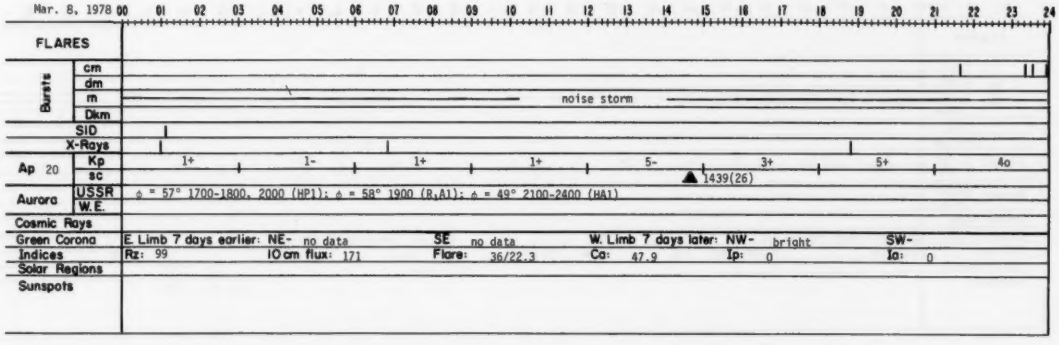


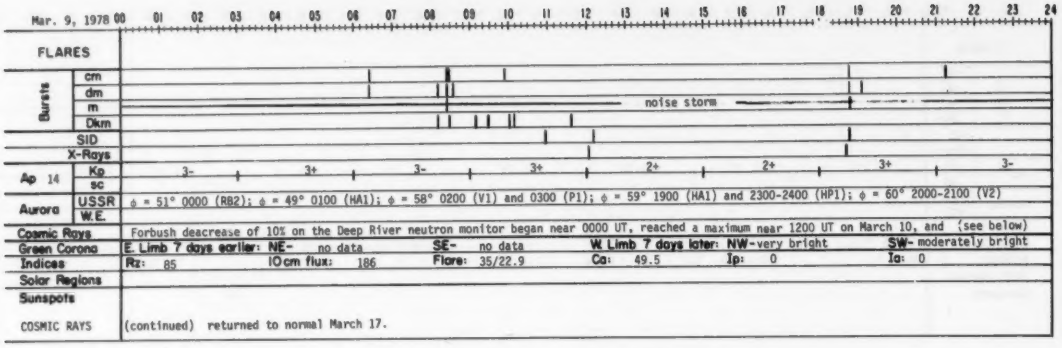


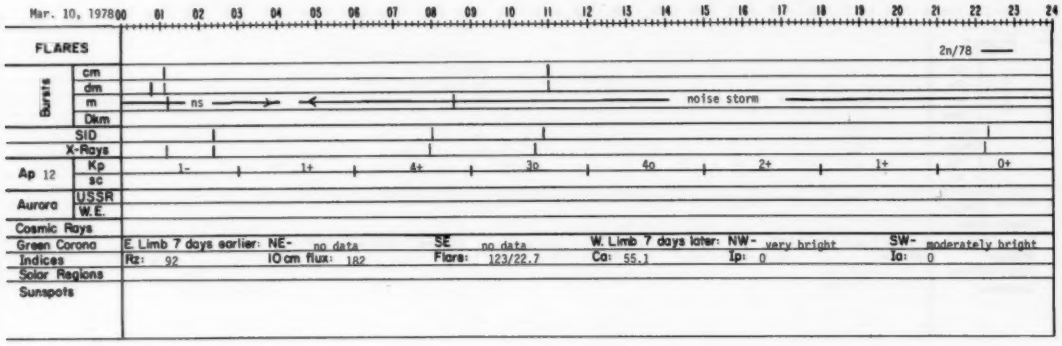

Mar. 5, 1978
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
Bursts
cm
dm
m
Dkm
ns
noise storm
SID
X-Rays
Ap 6 Q5
Kp
sc
0+ 0o 1o 2+ 2+ 3- 2o 1+
Aurora
USSR
W.E.
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE- no data SE- no data W. Limb 7 days later: NW- bright SW- moderately bright
Indices
Rz: 76 10cm flux: 157 Flare: 18/20.8 Ca: 36.1 Ip: 0 Ia: 0
Solar Regions
Sunspots

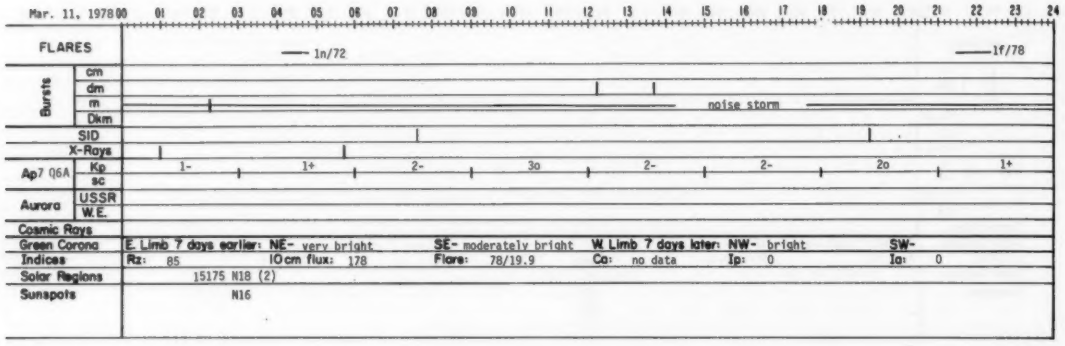

Mar. 6, 1978
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
2b/72
Bursts
cm
dm
m
Dkm
noise storm
noise storm
SID
X-Rays
Ap 7 Q7A
Kp
sc
1o 0+ 1- 3+ 3o 2+ 1- 0+
Aurora
USSR
W.E.
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE- no data SE no data W. Limb 7 days later: NW- bright SW-
Indices
Rz: 67 10cm flux: 165 Flare: 462/20.9 Ca: 44.6 Ip: 0 Ia: 0
Solar Regions
15174 S24
Sunspots
S23

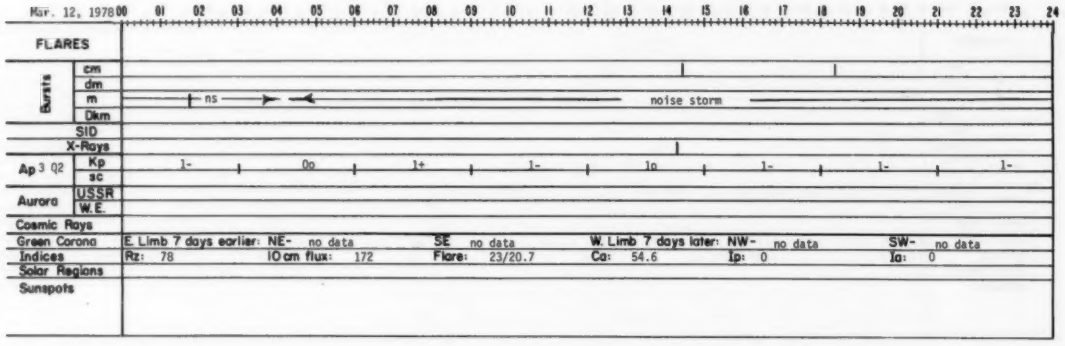

Mar. 7, 1978
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
Bursts
cm
dm
m
Dkm
noise storm
SID
X-Rays
Ap9 Q10A
Kp
sc
1+ 2+ 2o 3o 3o 2+ 1o 2o
Aurora
USSR
W.E.
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE- no data SE- no data W. Limb 7 days later: NW- bright SW-
Indices
Rz: 90 10cm flux: 168 Flare: 24/20.6 Ca: 38.7 Ip: 0 Ia: 1
Solar Regions
15173 S29 (3)
15172 N21 (2&3)
Sunspots
N25
N11
N19

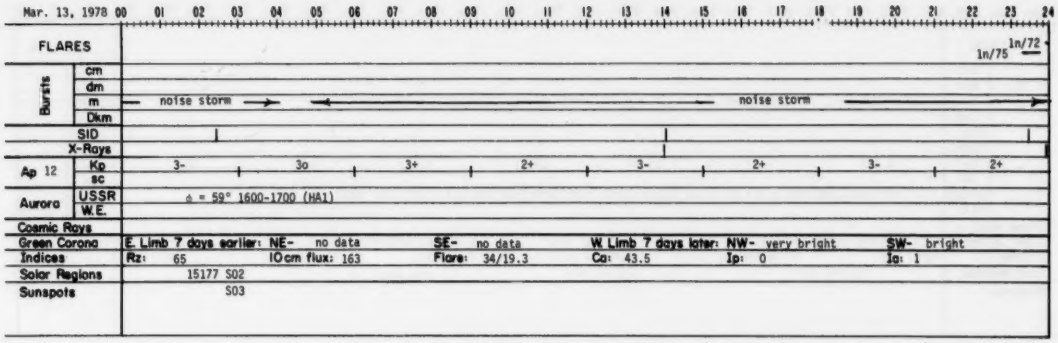

Mar. 8, 1978
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
Bursts
cm
dm
m
Dkm
noise storm
SID
X-Rays
Ap 20
Kp
sc
1+ 1- 1+ 1+ 5- 3+ 5+ 4o
1439(26)
Aurora
USSR
W.E.
φ = 57° 1700-1800, 2000 (HP1); φ = 58° 1900 (R1A1); φ = 49° 2100-2400 (HA1)
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE- no data SE no data W. Limb 7 days later: NW- bright SW-
Indices
Rz: 99 10cm flux: 171 Flare: 36/22.3 Ca: 47.9 Ip: 0 Ia: 0
Solar Regions
Sunspots

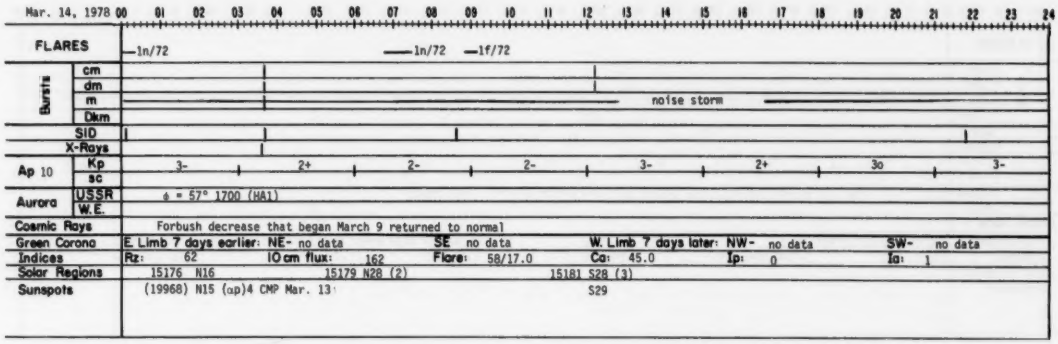

Mar. 9, 1978
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
Bursts
cm
dm
m
Dkm
noise storm
SID
X-Rays
Ap 14
Kp
3- 3+ 3- 3+ 2+ 2+ 3+ 3-
sc
Aurora
USSR
W.E.
φ = 51° 0000 (RB2); φ = 49° 0100 (HA1); φ = 58° 0200 (V1) and 0300 (P1); φ = 59° 1900 (HA1) and 2300-2400 (HP1); φ = 60° 2000-2100 (V2)
Cosmic Rays
Forbush descrease of 10% on the Deep River neutron monitor began near 0000 UT, reached a maximum near 1200 UT on March 10, and (see below)
Green Corona
E. Limb 7 days earlier: NE- no data SE- no data W. Limb 7 days later: NW- very bright SW- moderately bright
Indices
Rz: 85 10cm flux: 186 Flare: 35/22.9 Ca: 49.5 Ip: 0 Ia: 0
Solar Regions
Sunspots
COSMIC RAYS
(continued) returned to normal March 17.

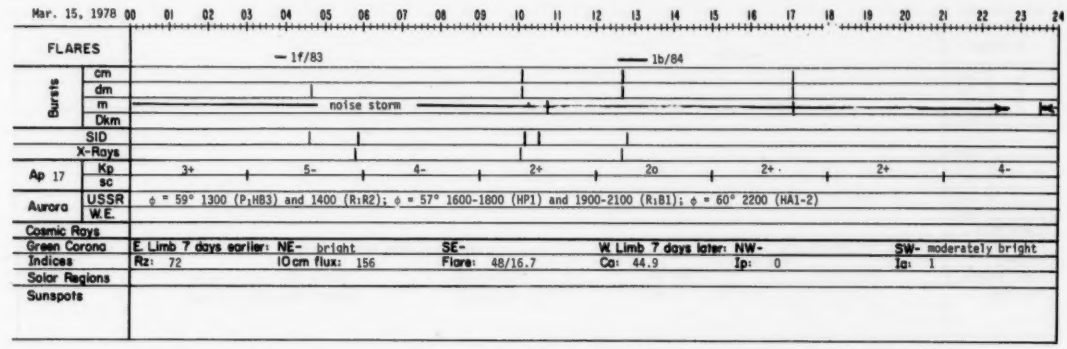

Mar. 10, 1978
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
2n/78
Bursts
cm
dm
m
ns
noise storm
Dkm
SID
X-Rays
Ap 12
Kp
1- 1+ 4+ 3o 4o 2+ 1+ 0+
sc
Aurora
USSR
W.E.
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE- no data SE no data W. Limb 7 days later: NW- very bright SW- moderately bright
Indices
Rz: 92 10cm flux: 182 Flare: 123/22.7 Ca: 55.1 Ip: 0 Ia: 0
Solar Regions
Sunspots

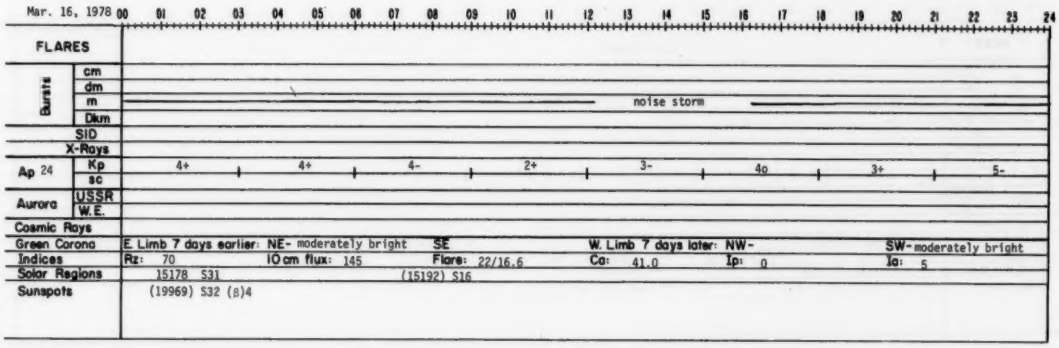

Mar. 11, 1978
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
1n/72
1f/78
Bursts
cm
dm
m
noise storm
Dkm
SID
X-Rays
Ap7 Q6A
Kp
1- 1+ 2- 3o 2- 2- 2o 1+
sc
Aurora
USSR
W.E.
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE- very bright SE- moderately bright W. Limb 7 days later: NW- bright SW-
Indices
Rz: 85 10cm flux: 178 Flare: 78/19.9 Ca: no data Ip: 0 Ia: 0
Solar Regions
15175 N18 (2)
Sunspots
N16

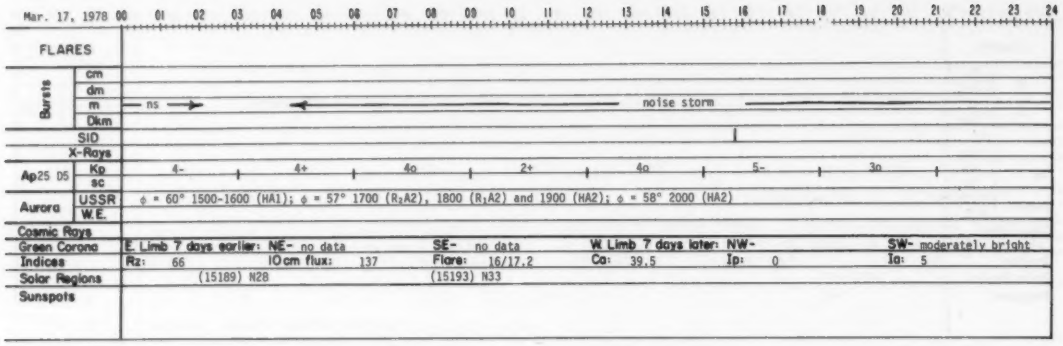

Mar. 12, 1978
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
Bursts
cm
dm
m
ns
noise storm
Dkm
SID
X-Rays
Ap 3 Q2
Kp
1- 0o 1+ 1- 1o 1- 1- 1-
sc
Aurora
USSR
W.E.
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE- no data SE no data W. Limb 7 days later: NW- no data SW- no data
Indices
Rz: 78 10cm flux: 172 Flare: 23/20.7 Ca: 54.6 Ip: 0 Ia: 0
Solar Regions
Sunspots

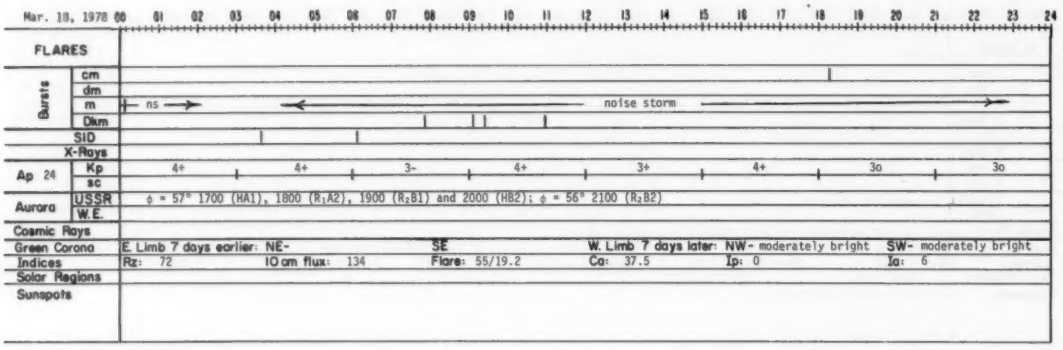

Mar. 13, 1978 00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
1n/72
1n/75
1n/72
Bursts
cm
dm
m
noise storm
noise storm
Dkm
SID
X-Rays
Ap 12
Kp
3- 3o 3+ 2+ 3- 2+ 3- 2+
sc
Aurora
USSR
φ = 59° 1600-1700 (HA1)
W.E.
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE- no data SE- no data W. Limb 7 days later: NW- very bright SW- bright
Indices
Rz: 65 10cm flux: 163 Flare: 34/19.3 Ca: 43.5 Ip: 0 Ia: 1
Solar Regions
15177 S02
Sunspots
S03

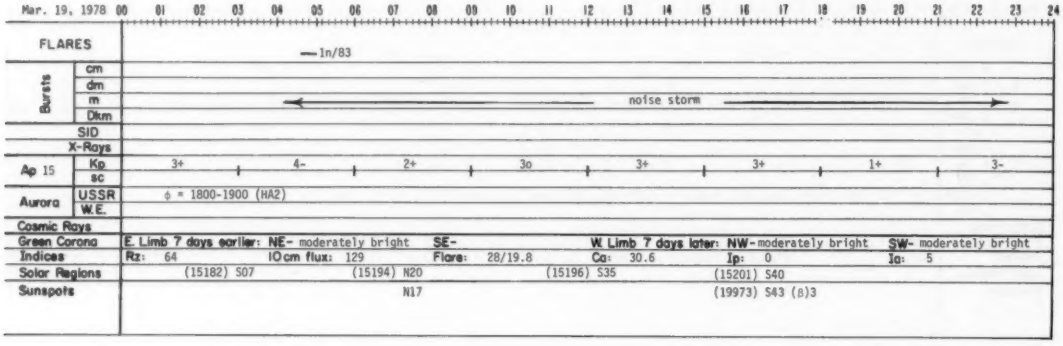

Mar. 14, 1978 00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
1n/72
1n/72
1f/72
Bursts
cm
dm
m
noise storm
Dkm
SID
X-Rays
Ap 10
Kp
3- 2+ 2- 2- 3- 2+ 3o 3-
sc
Aurora
USSR
φ = 57° 1700 (HA1)
W.E.
Cosmic Rays
Forbush decrease that began March 9 returned to normal
Green Corona
E. Limb 7 days earlier: NE- no data SE no data W. Limb 7 days later: NW- no data SW- no data
Indices
Rz: 62 10cm flux: 162 Flare: 58/17.0 Ca: 45.0 Ip: 0 Ia: 1
Solar Regions
15176 N16 15179 N28 (2) 15181 S28 (3)
Sunspots
(19968) N15 (αp)4 CMP Mar. 13
S29

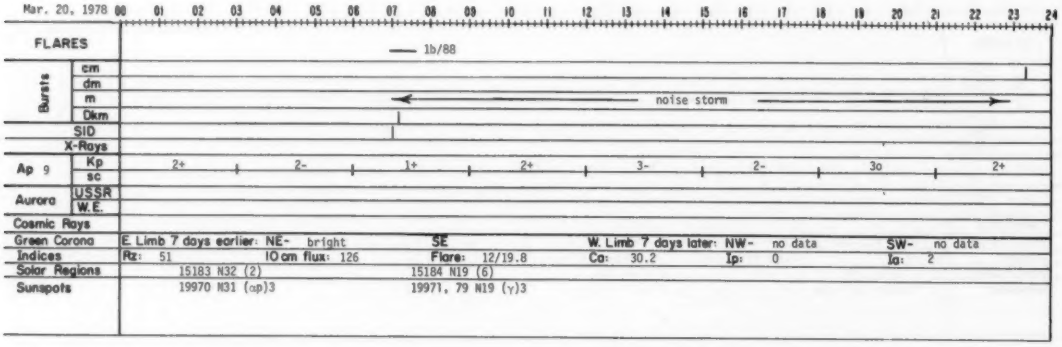

Mar. 15, 1978 00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
1f/83
1b/84
Bursts
cm
dm
m
noise storm
Dkm
SID
X-Rays
Ap 17
Kp
3+ 5- 4- 2+ 2o 2+ 2+ 4-
sc
Aurora
USSR
φ = 59° 1300 (P1HB3) and 1400 (R1R2); φ = 57° 1600-1800 (HP1) and 1900-2100 (R1B1); φ = 60° 2200 (HA1-2)
W.E.
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE- bright SE- W. Limb 7 days later: NW- SW- moderately bright
Indices
Rz: 72 10cm flux: 156 Flare: 48/16.7 Ca: 44.9 Ip: 0 Ia: 1
Solar Regions
Sunspots

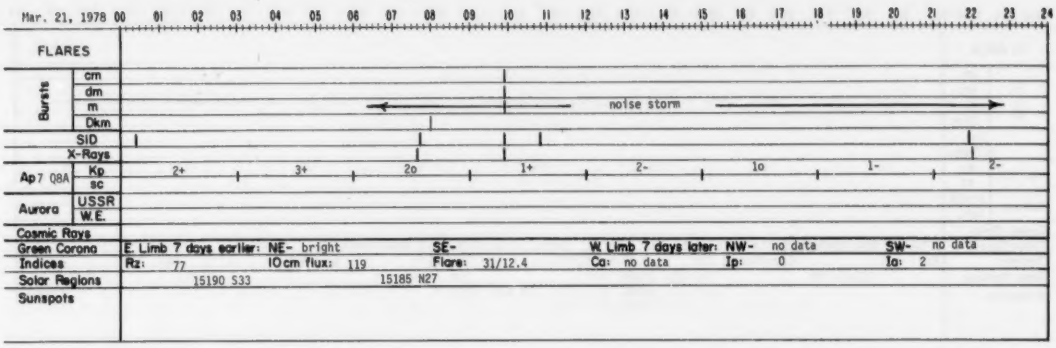

Mar. 16, 1978 00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
Bursts
cm
dm
m
noise storm
Dkm
SID
X-Rays
Ap 24
Kp
4+ 4+ 4- 2+ 3- 4o 3+ 5-
sc
Aurora
USSR
W.E.
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE- moderately bright SE W. Limb 7 days later: NW- SW- moderately bright
Indices
Rz: 70 10cm flux: 145 Flare: 22/16.6 Ca: 41.0 Ip: 0 Ia: 5
Solar Regions
15178 S31 (15192) S16
Sunspots
(19969) S32 (β)4

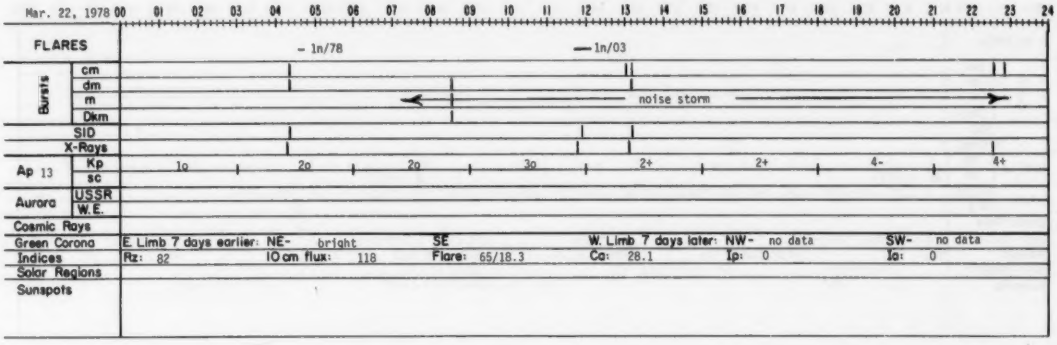

Mar. 17, 1978
FLARES
Bursts
cm
dm
m
Dkm
ns
noise storm
SID
X-Rays
Ap25 05
Kp
sc
4- 4+ 4o 2+ 4o 5- 3o
Aurora
USSR
W.E.
ϕ = 60° 1500-1600 (HA1); ϕ = 57° 1700 (R2A2), 1800 (R1A2) and 1900 (HA2); ϕ = 58° 2000 (HA2)
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE- no data SE- no data
W. Limb 7 days later: NW- SW- moderately bright
Indices
Rz: 66 10cm flux: 137 Flare: 16/17.2 Ca: 39.5 Ip: 0 Ia: 5
Solar Regions
(15189) N28 (15193) N33
Sunspots

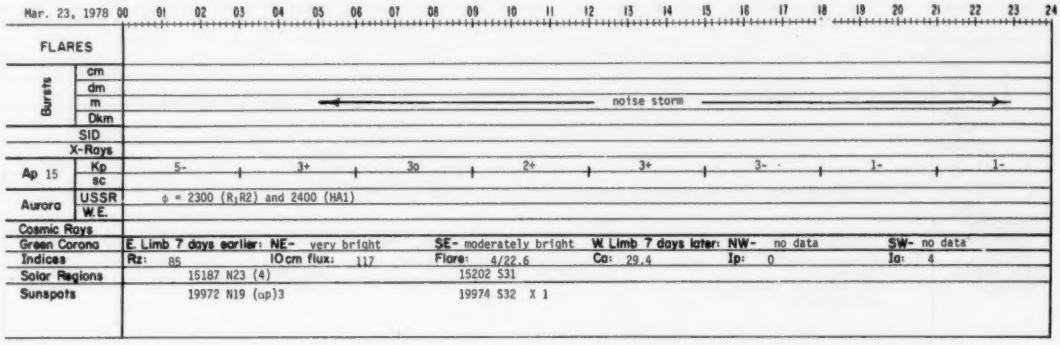

Mar. 18, 1978
FLARES
Bursts
cm
dm
m
Dkm
ns
noise storm
SID
X-Rays
Ap 24
Kp
sc
4+ 4+ 3- 4+ 3+ 4+ 3o 3o
Aurora
USSR
W.E.
ϕ = 57° 1700 (HA1), 1800 (R1A2), 1900 (R2B1) and 2000 (HB2); ϕ = 56° 2100 (R2B2)
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE- SE
W. Limb 7 days later: NW- moderately bright SW- moderately bright
Indices
Rz: 72 10cm flux: 134 Flare: 55/19.2 Ca: 37.5 Ip: 0 Ia: 6
Solar Regions
Sunspots

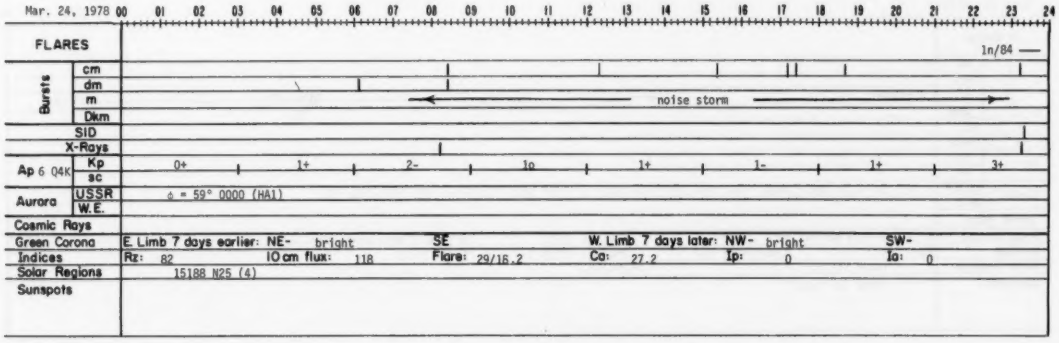

Mar. 19, 1978
FLARES
1n/83
Bursts
cm
dm
m
Dkm
noise storm
SID
X-Rays
Ap 15
Kp
sc
3+ 4- 2+ 3o 3+ 3+ 1+ 3-
Aurora
USSR
W.E.
ϕ = 1800-1900 (HA2)
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE- moderately bright SE-
W. Limb 7 days later: NW- moderately bright SW- moderately bright
Indices
Rz: 64 10cm flux: 129 Flare: 28/19.8 Ca: 30.6 Ip: 0 Ia: 5
Solar Regions
(15182) S07 (15194) N20 (15196) S35 (15201) S40
Sunspots
N17 (19973) S43 (β)3

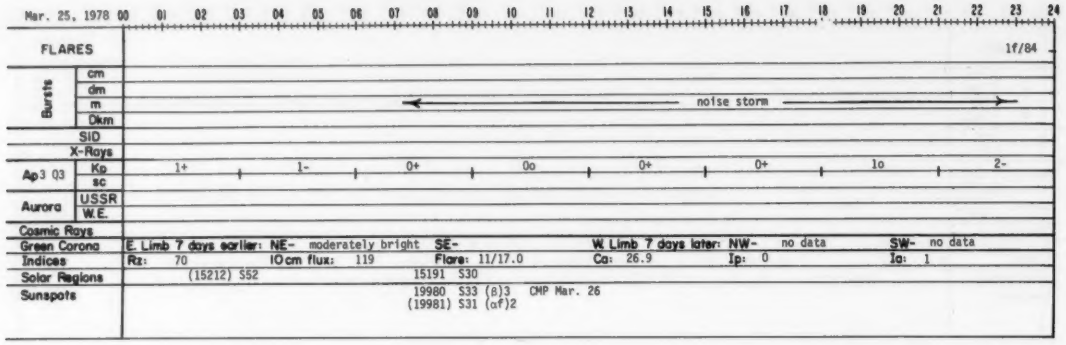

Mar. 20, 1978
FLARES
1b/88
Bursts
cm
dm
m
Dkm
noise storm
SID
X-Rays
Ap 9
Kp
sc
2+ 2- 1+ 2+ 3- 2- 3o 2+
Aurora
USSR
W.E.
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE- bright SE
W. Limb 7 days later: NW- no data SW- no data
Indices
Rz: 51 10cm flux: 126 Flare: 12/19.8 Ca: 30.2 Ip: 0 Ia: 2
Solar Regions
15183 N32 (2) 15184 N19 (6)
Sunspots
19970 N31 (αp)3 19971, 79 N19 (γ)3

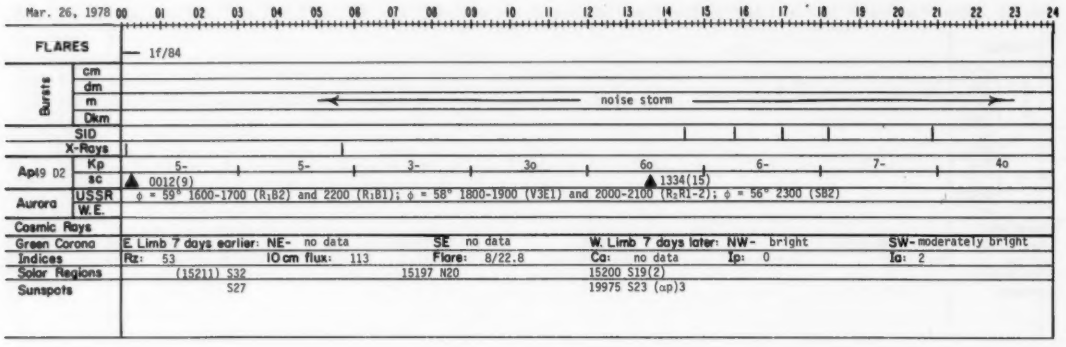

Mar. 21, 1978
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
Bursts
cm
dm
m
Dkm
noise storm
SID
X-Rays
Ap 7 Q8A
Kp
sc
2+ 3+ 2o 1+ 2- 1o 1- 2-
Aurora
USSR
W.E.
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE- bright SE- W. Limb 7 days later: NW- no data SW- no data
Indices
Rz: 77 10 cm flux: 119 Flare: 31/12.4 Ca: no data Ip: 0 Ia: 2
Solar Regions
15190 S33 15185 N27
Sunspots

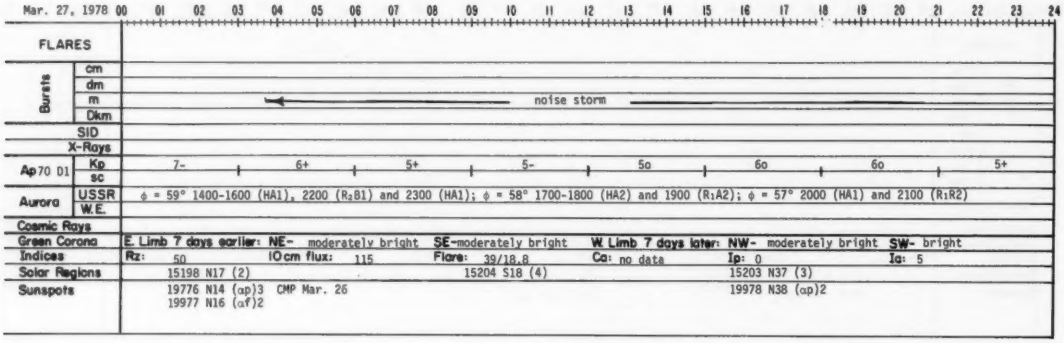

Mar. 22, 1978
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
- 1n/78
— 1n/03
Bursts
cm
dm
m
Dkm
noise storm
SID
X-Rays
Ap 13
Kp
sc
1o 2o 2o 3o 2+ 2+ 4- 4+
Aurora
USSR
W.E.
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE- bright SE W. Limb 7 days later: NW- no data SW- no data
Indices
Rz: 82 10 cm flux: 118 Flare: 65/18.3 Ca: 28.1 Ip: 0 Ia: 0
Solar Regions
Sunspots

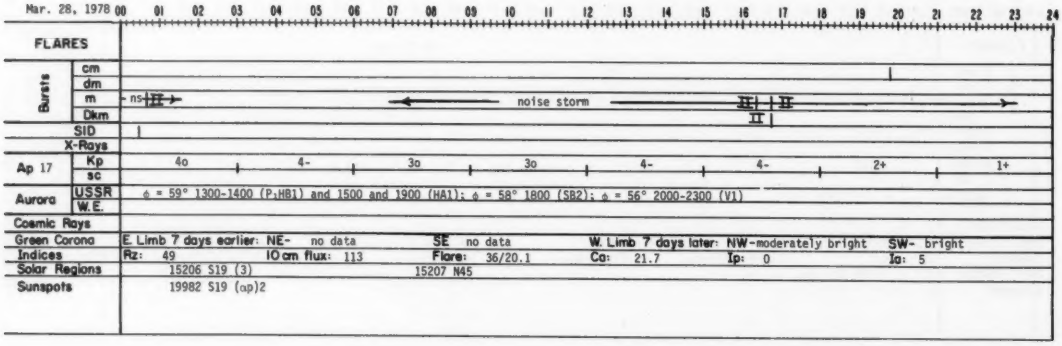

Mar. 23, 1978
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
Bursts
cm
dm
m
Dkm
noise storm
SID
X-Rays
Ap 15
Kp
sc
5- 3+ 3o 2+ 3+ 3- 1- 1-
Aurora
USSR
W.E.
ϕ = 2300 (R1R2) and 2400 (HA1)
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE- very bright SE- moderately bright W. Limb 7 days later: NW- no data SW- no data
Indices
Rz: 85 10 cm flux: 117 Flare: 4/22.6 Ca: 29.4 Ip: 0 Ia: 4
Solar Regions
15187 N23 (4) 15202 S31
Sunspots
19972 N19 (αp)3 19974 S32 X 1

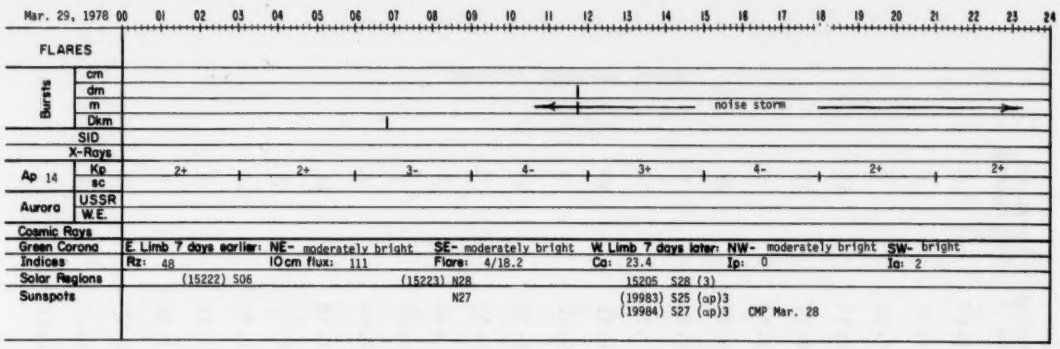

Mar. 24, 1978
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
1n/84 —
Bursts
cm
dm
m
Dkm
noise storm
SID
X-Rays
Ap 6 Q4K
Kp
sc
0+ 1+ 2- 1o 1+ 1- 1+ 3+
Aurora
USSR
W.E.
ϕ = 59° 0000 (HA1)
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE- bright SE W. Limb 7 days later: NW- bright SW-
Indices
Rz: 82 10 cm flux: 118 Flare: 29/16.2 Ca: 27.2 Ip: 0 Ia: 0
Solar Regions
15188 N25 (4)
Sunspots

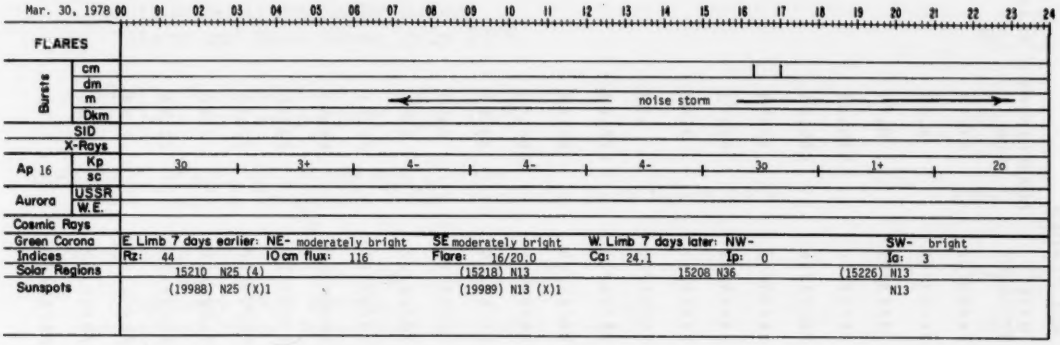

Mar. 25, 1978
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
1f/84
Bursts
cm
dm
m
noise storm
Dkm
SID
X-Rays
Ap3 Q3
Kp
1+ 1- 0+ 0o 0+ 0+ 1o 2-
sc
Aurora
USSR
W.E.
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE- moderately bright SE-
W. Limb 7 days later: NW- no data SW- no data
Indices
Rz: 70 10cm flux: 119 Flare: 11/17.0 Ca: 26.9 Ip: 0 Ia: 1
Solar Regions
(15212) S52 15191 S30
Sunspots
19980 S33 (β)3 CMP Mar. 26
(19981) S31 (αf)2

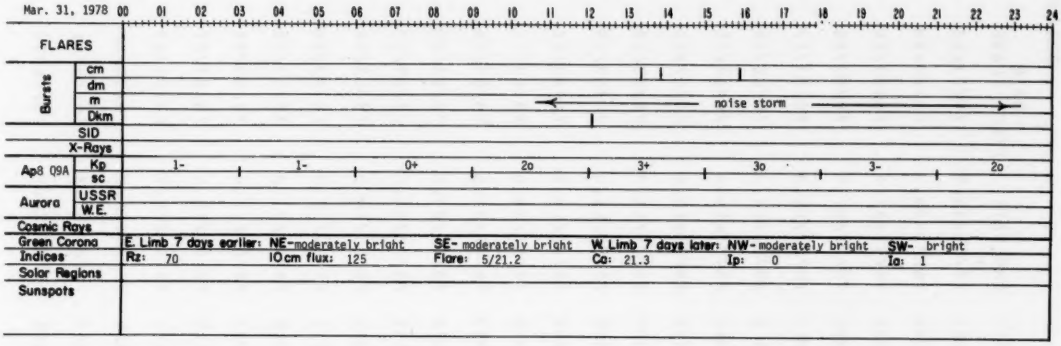

Mar. 26, 1978
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
1f/84
Bursts
cm
dm
m
noise storm
Dkm
SID
X-Rays
Ap49 Q2
Kp
5- 5- 3- 3o 6o 6- 7- 4o
sc
0012(9)
1334(15)
Aurora
USSR
ϕ = 59° 1600-1700 (R1B2) and 2200 (R1B1); ϕ = 58° 1800-1900 (V3E1) and 2000-2100 (R2R1-2); ϕ = 56° 2300 (SB2)
W.E.
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE- no data SE no data
W. Limb 7 days later: NW- bright SW- moderately bright
Indices
Rz: 53 10cm flux: 113 Flare: 8/22.8 Ca: no data Ip: 0 Ia: 2
Solar Regions
(15211) S32 15197 N20 15200 S19(2)
Sunspots
S27 19975 S23 (αp)3


Mar. 27, 1978
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
Bursts
cm
dm
m
noise storm
Dkm
SID
X-Rays
Ap70 D1
Kp
7- 6+ 5+ 5- 5o 6o 6o 5+
sc
Aurora
USSR
ϕ = 59° 1400-1600 (HA1), 2200 (R2B1) and 2300 (HA1); ϕ = 58° 1700-1800 (HA2) and 1900 (R1A2); ϕ = 57° 2000 (HA1) and 2100 (R1R2)
W.E.
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE- moderately bright SE-moderately bright
W. Limb 7 days later: NW- moderately bright SW- bright
Indices
Rz: 50 10cm flux: 115 Flare: 39/18.8 Ca: no data Ip: 0 Ia: 5
Solar Regions
15198 N17 (2) 15204 S18 (4) 15203 N37 (3)
Sunspots
19776 N14 (αp)3 CMP Mar. 26
19977 N16 (αf)2
19978 N38 (αp)2


Mar. 28, 1978
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
Bursts
cm
dm
m
ns
noise storm
Dkm
SID
X-Rays
Ap 17
Kp
4o 4- 3o 3o 4- 4- 2+ 1+
sc
Aurora
USSR
ϕ = 59° 1300-1400 (P1HB1) and 1500 and 1900 (HA1); ϕ = 58° 1800 (SB2); ϕ = 56° 2000-2300 (V1)
W.E.
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE- no data SE no data
W. Limb 7 days later: NW-moderately bright SW- bright
Indices
Rz: 49 10cm flux: 113 Flare: 36/20.1 Ca: 21.7 Ip: 0 Ia: 5
Solar Regions
15206 S19 (3) 15207 N45
Sunspots
19982 S19 (αp)2


Mar. 29, 1978
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
Bursts
cm
dm
m
Dkm
noise storm
SID
X-Rays
Ap 14
Kp
2+ 2+ 3- 4- 3+ 4- 2+ 2+
sc
Aurora
USSR
W.E.
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE- moderately bright SE- moderately bright W. Limb 7 days later: NW- moderately bright SW- bright
Indices
Rz: 48 10 cm flux: 111 Flare: 4/18.2 Ca: 23.4 Ip: 0 Ia: 2
Solar Regions
(15222) S06 (15223) N28 15205 S28 (3)
Sunspots
N27
(19983) S25 (ap)3
(19984) S27 (ap)3 CMP Mar. 28


Mar. 30, 1978
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
FLARES
Bursts
cm
dm
m
Dkm
noise storm
SID
X-Rays
Ap 16
Kp
3o 3+ 4- 4- 4- 3o 1+ 2o
sc
Aurora
USSR
W.E.
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE- moderately bright SE moderately bright W. Limb 7 days later: NW- SW- bright
Indices
Rz: 44 10 cm flux: 116 Flare: 16/20.0 Ca: 24.1 Ip: 0 Ia: 3
Solar Regions
15210 N25 (4) (15218) N13 15208 N36 (15226) N13
Sunspots
(19988) N25 (X)1 (19989) N13 (X)1 N13


Mar. 31, 1978
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FLARES
Bursts
cm
dm
m
Dkm
noise storm
SID
X-Rays
Ap8 09A
Kp
1- 1- 0+ 2o 3+ 3o 3- 2o
sc
Aurora
USSR
W.E.
Cosmic Rays
Green Corona
E. Limb 7 days earlier: NE-moderately bright SE- moderately bright W. Limb 7 days later: NW-moderately bright SW- bright
Indices
Rz: 70 10 cm flux: 125 Flare: 5/21.2 Ca: 21.3 Ip: 0 Ia: 1
Solar Regions
Sunspots

REGIONAL FLARE INDEX

INCLUDES ALL FLARES

MC MATH PLAGE NO.	LAT	CMP DATE	DATE FIRST FLARE	DATE LAST FLARE	FLARE-INDEX SUM	FLARE-INDEX MEAN	TOTAL NO. OF FLARES
15180	S21	78/03/04.5	78/03/02	78/03/02	17.10	17.10	1
15174	S24	78/03/06.3	78/03/09	78/03/09	3.38	3.38	1
15173	S28	78/03/07.7	78/03/04	78/03/09	8.79	1.46	3
15172	N21	78/03/07.9	78/02/28	78/03/14	620.82	41.39	64
15175	N18	78/03/11.0	78/03/07	78/03/16	105.05	10.51	27
15177	S 2	78/03/13.8	78/03/08	78/03/13	12.54	2.09	5
15176	N16	78/03/14.0	78/03/08	78/03/19	61.73	5.14	22
15179	N28	78/03/14.6	78/03/10	78/03/17	7.97	1.00	5
15181	S29	78/03/14.7	78/03/08	78/03/08	.89	.89	1
15178	S34	78/03/18.0	78/03/09	78/03/23	178.68	11.91	53
15201	S42	78/03/19.8	78/03/22	78/03/24	15.29	5.10	8
15184	N19	78/03/20.5	78/03/14	78/03/26	156.80	12.06	41
15183	N33	78/03/21.0	78/03/15	78/03/19	39.03	7.81	9
15187	N23	78/03/23.2	78/03/19	78/03/26	2.48	.31	2
15202	S31	78/03/24.0	78/03/22	78/03/22	8.69	8.69	2
15188	N25	78/03/24.8	78/03/20	78/03/22	22.31	7.44	4
15211	S32	78/03/26.2	78/03/26	78/03/29	45.51	11.38	11
15198	N16	78/03/27.2	78/03/20	78/03/28	23.36	2.60	8
15203	N37	78/03/27.6	78/03/22	78/04/02	23.12	1.93	10
15206	S19	78/03/28.6	78/03/27	78/04/04	8.48	.94	3
15205	S27	78/03/29.7	78/03/23	78/03/30	21.88	2.74	6
15218	N13	78/03/30.2	78/04/02	78/04/02	2.03	2.03	1
15223	N27	78/03/30.3	78/04/01	78/04/02	4.85	2.43	3
15226	N13	78/03/30.7	78/04/03	78/04/03	1.02	1.02	1

Miscellaneous Data

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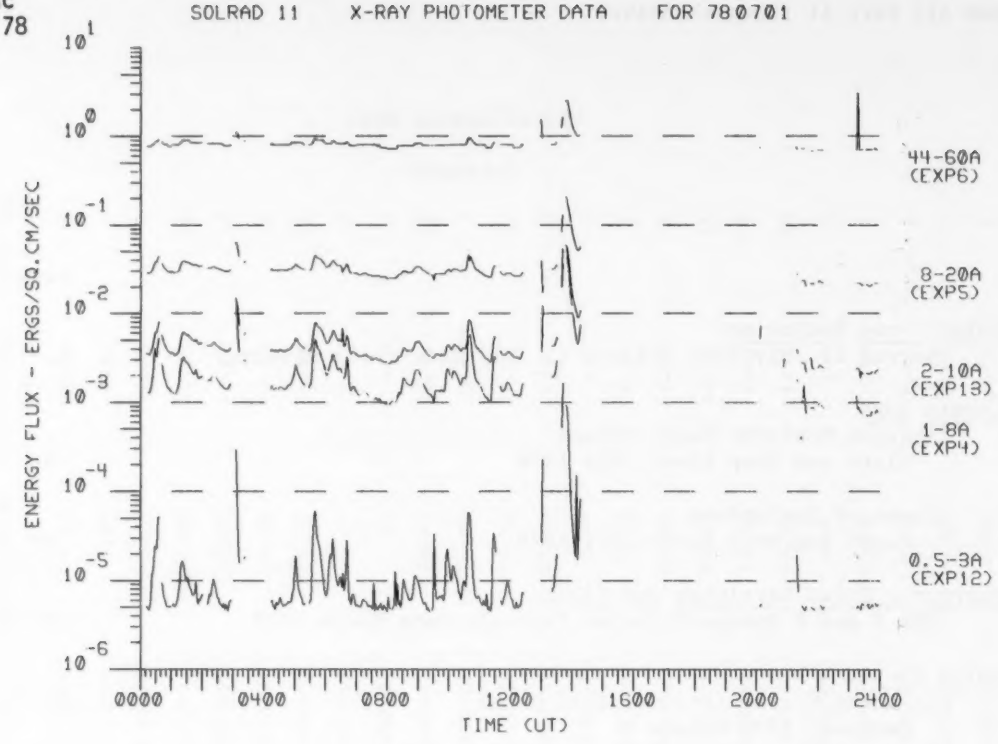
SOLRAD 11 X-RAY PHOTOMETER DATA FOR 780701
ENERGY FLUX - ERGS/SQ.CM/SEC
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10^{0}
10^{-1}
10^{-2}
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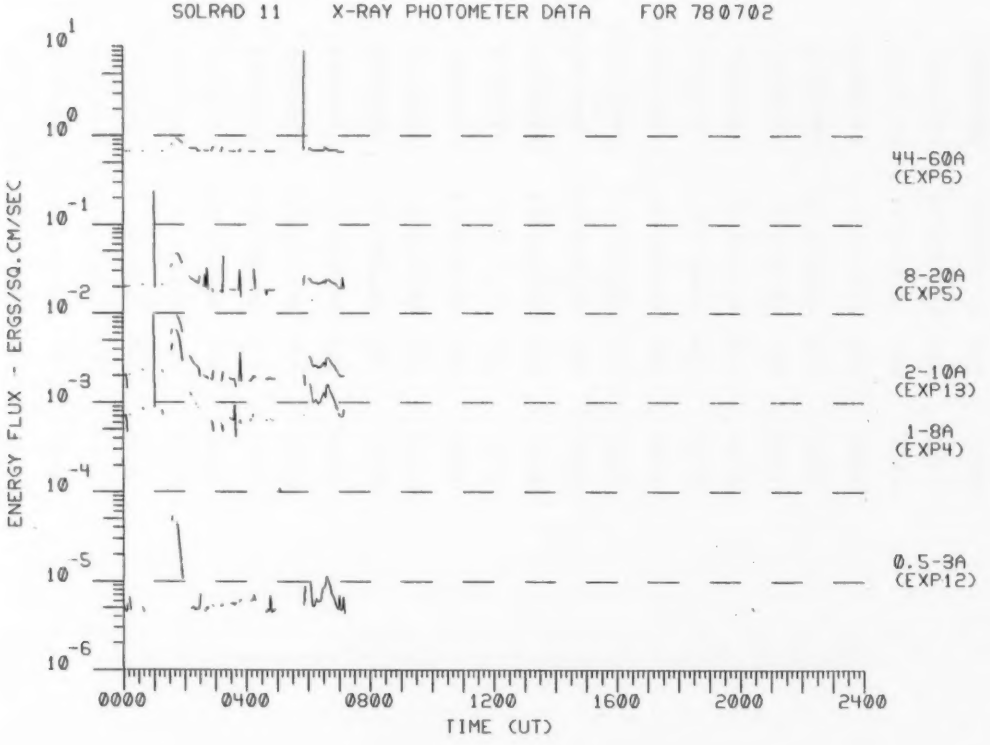
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)


SOLRAD 11 X-RAY PHOTOMETER DATA FOR 780702
ENERGY FLUX - ERGS/SQ.CM/SEC
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10^{-1}
10^{-2}
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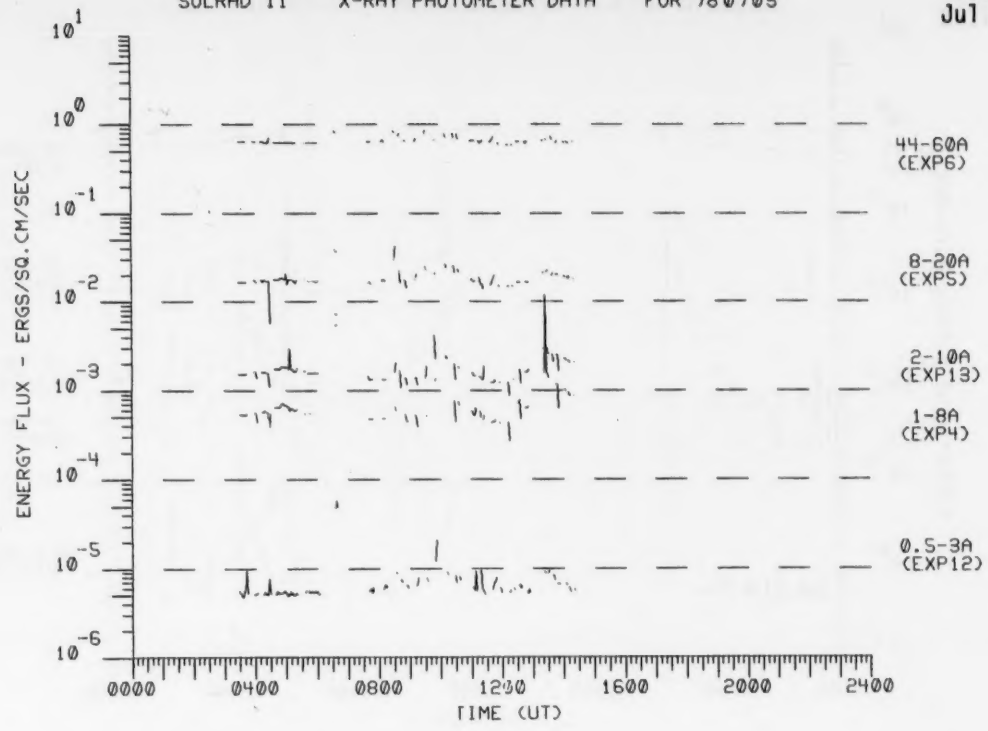
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)


SOLRAD 11 X-RAY PHOTOMETER DATA FOR 780703
ENERGY FLUX - ERGS/SQ.CM/SEC
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10^{-1}
10^{-2}
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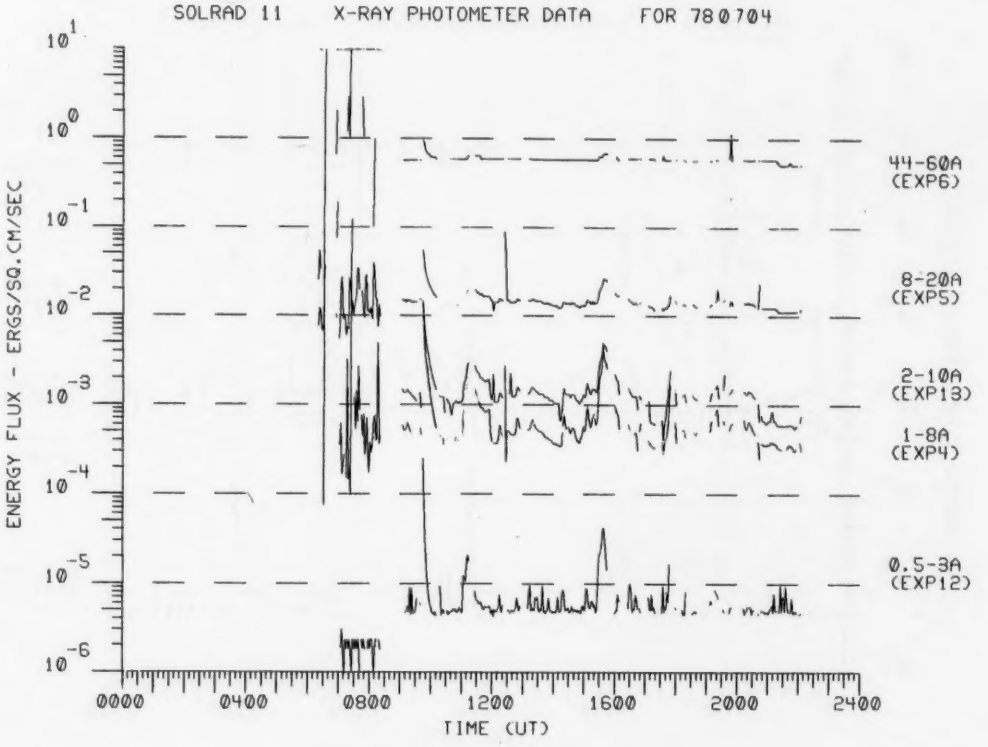
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)


SOLRAD 11 X-RAY PHOTOMETER DATA FOR 780704
ENERGY FLUX - ERGS/SQ.CM/SEC
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10^{0}
10^{-1}
10^{-2}
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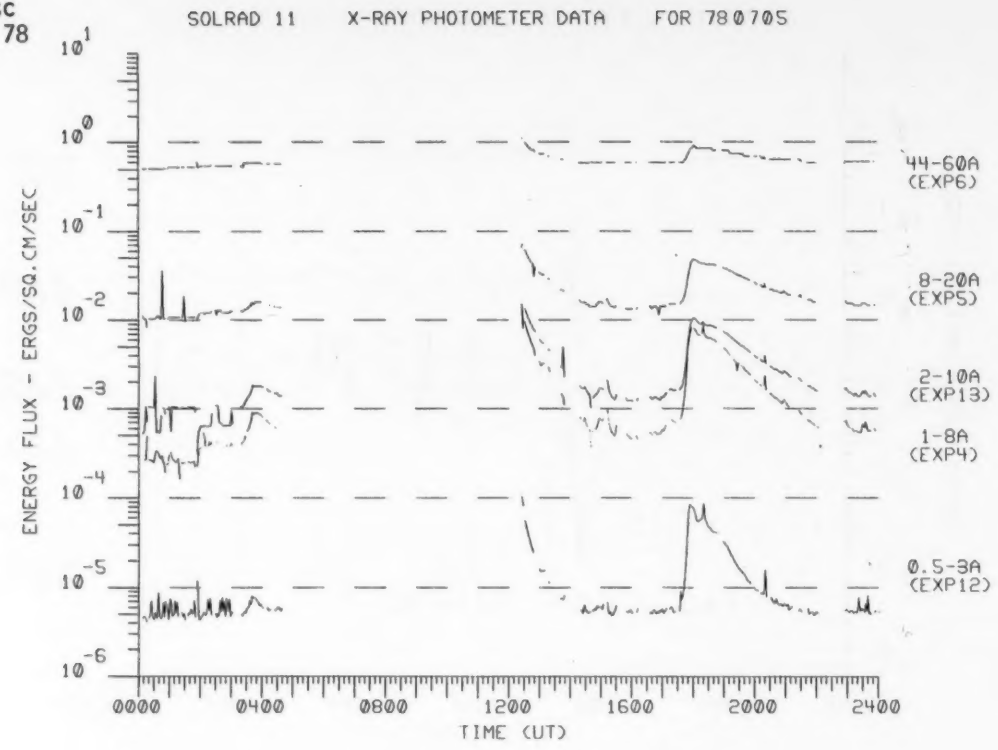
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)


SOLRAD 11 X-RAY PHOTOMETER DATA FOR 780705
ENERGY FLUX - ERGS/SQ.CM/SEC
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10^{0}
10^{-1}
10^{-2}
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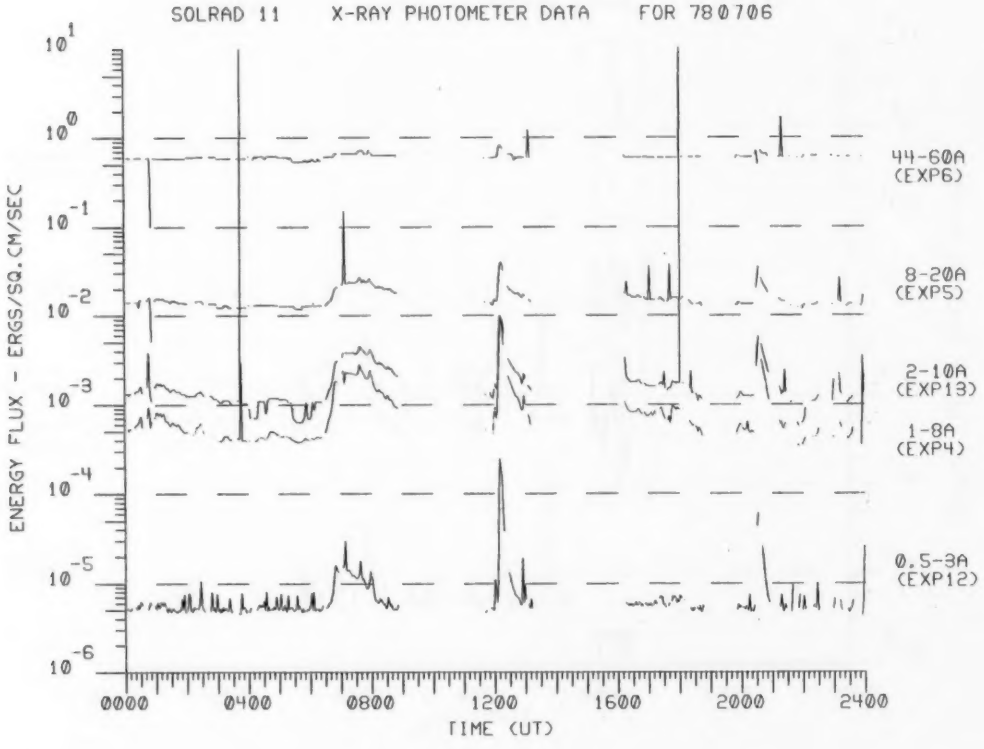
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)


SOLRAD 11 X-RAY PHOTOMETER DATA FOR 780706
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
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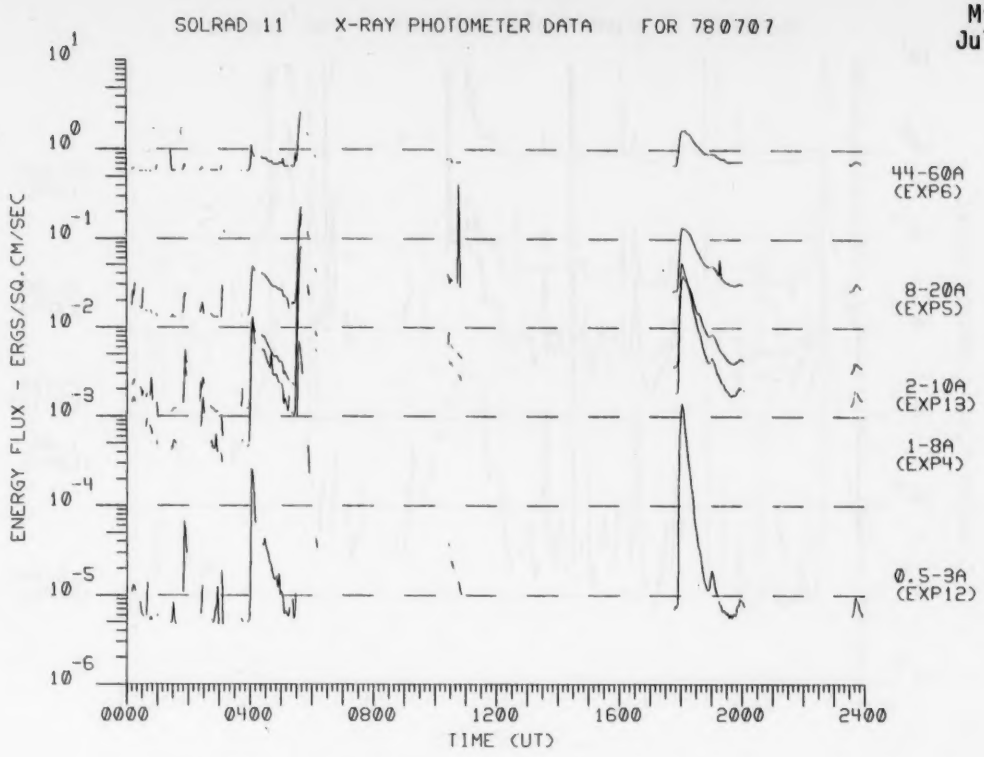
0800
1200
1600
2000
2400
TIME (UT)


SOLRAD 11 X-RAY PHOTOMETER DATA FOR 780707
ENERGY FLUX - ERGS/SQ.CM/SEC
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10^{-1}
10^{-2}
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10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
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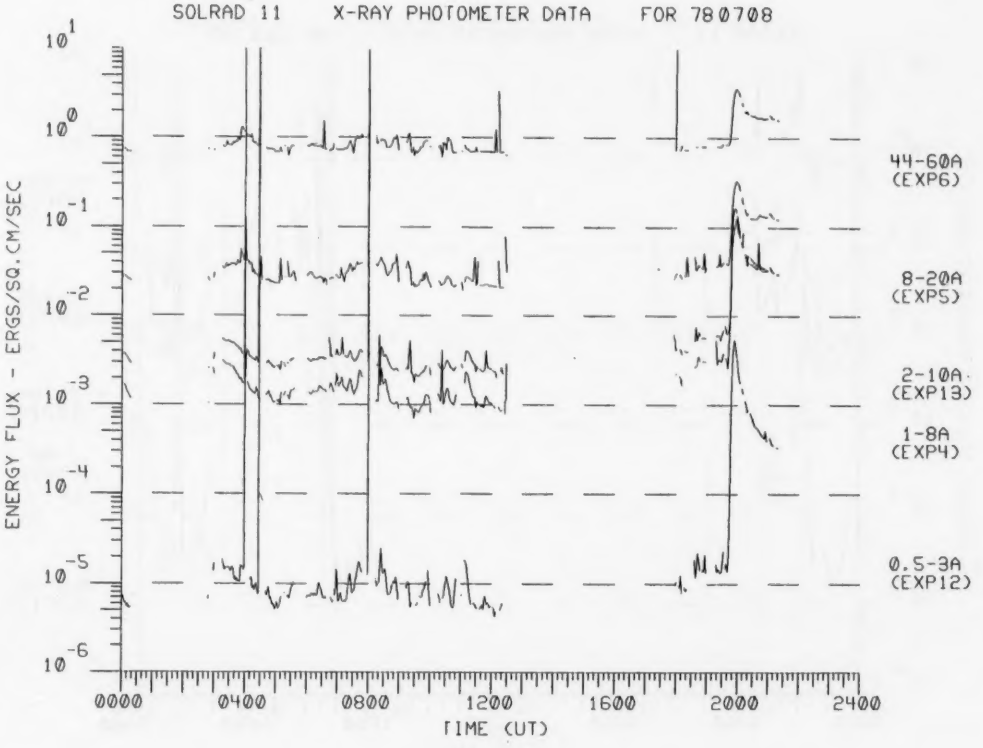
TIME (UT)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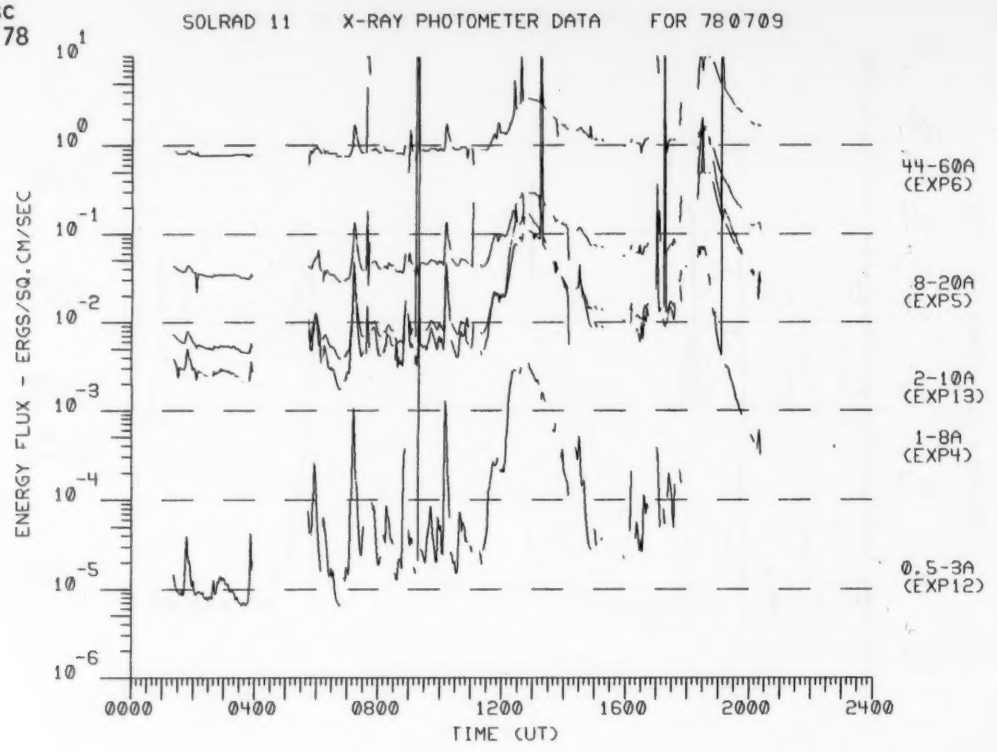
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)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ENERGY FLUX - ERGS/SQ.CM/SEC
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8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
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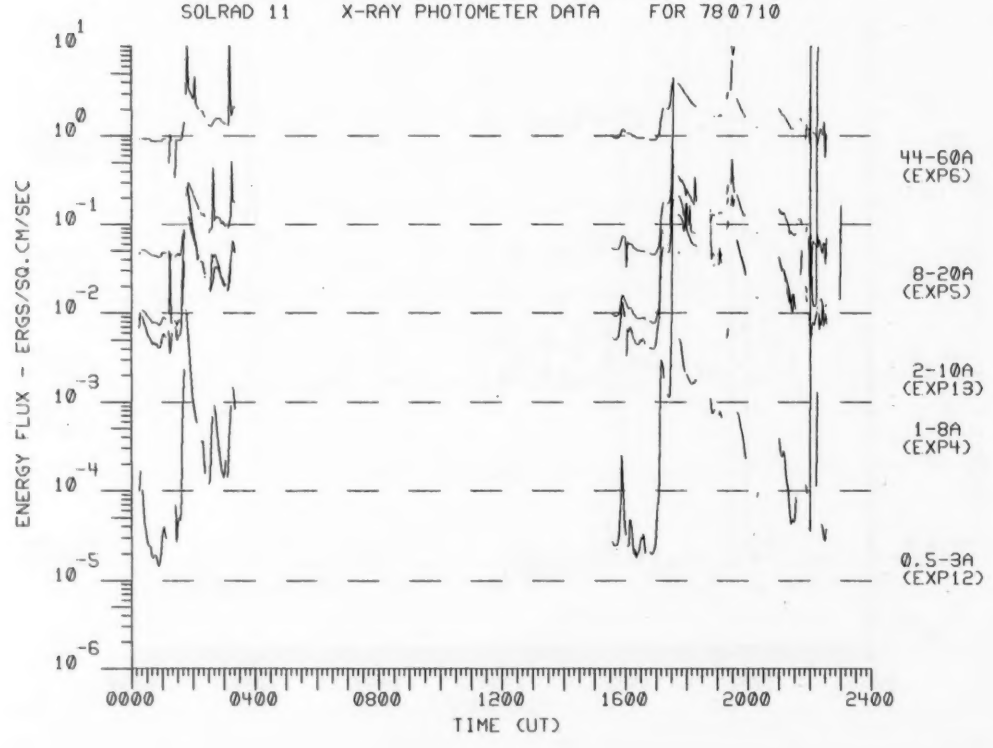
0800
1200
1600
2000
2400
TIME (UT)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ENERGY FLUX - ERGS/SQ.CM/SEC
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10^{-1}
10^{-2}
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44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
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0.5-3A (EXP12)
0000
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1600
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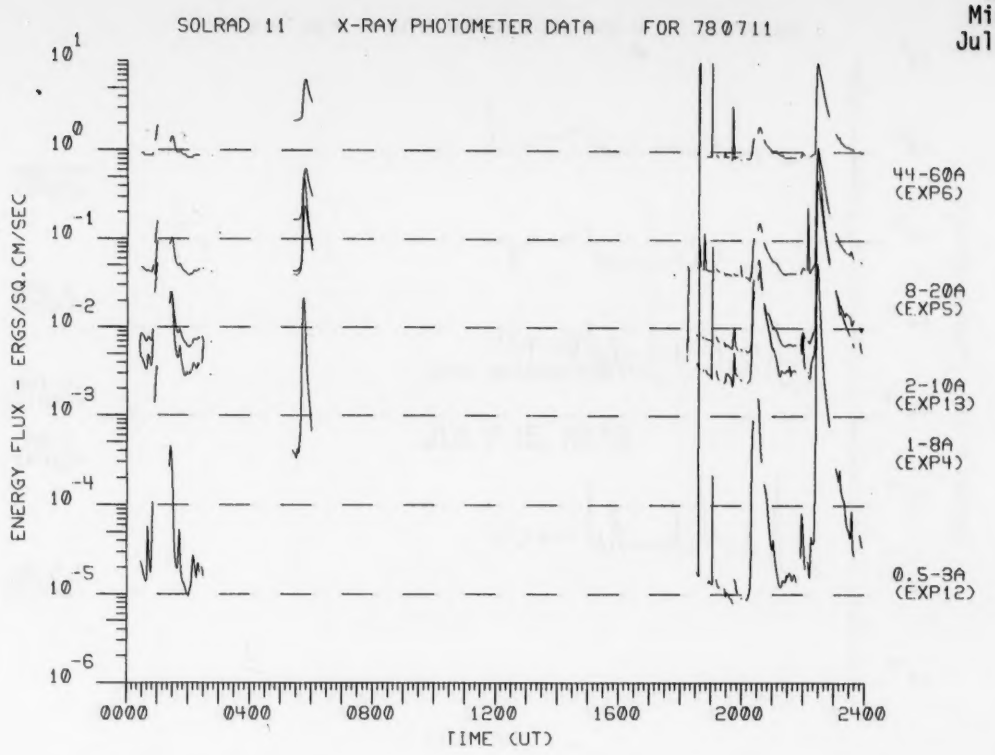
2400
TIME (UT)


SOLRAD 11 X-RAY PHOTOMETER DATA FOR 780711
ENERGY FLUX - ERGS/SQ.CM/SEC
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10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
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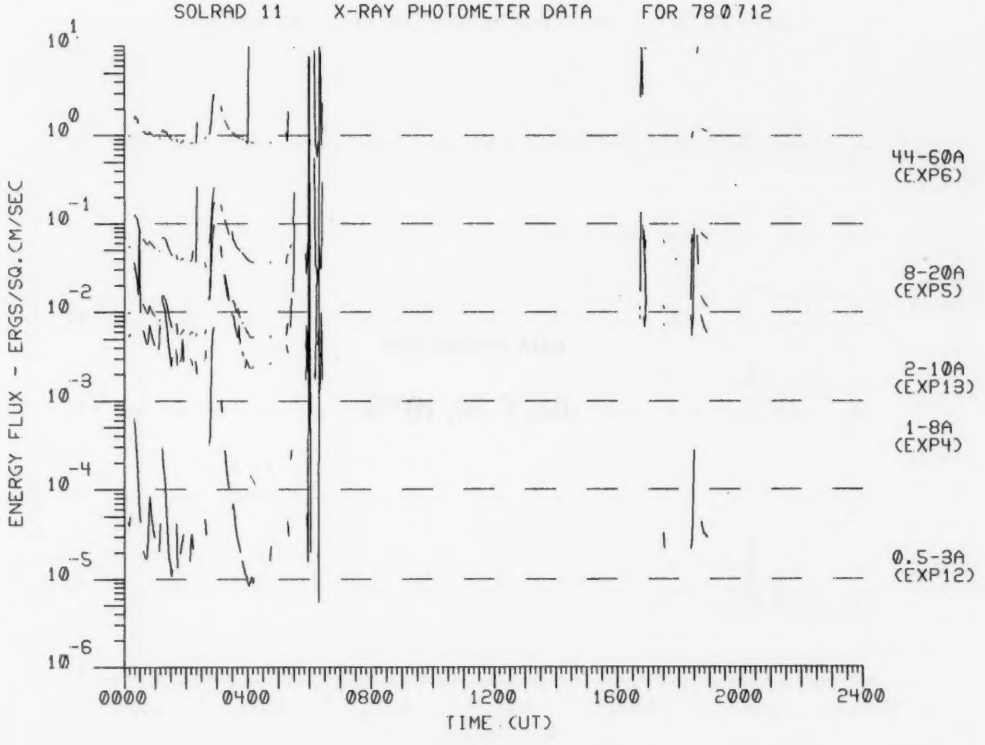
TIME (UT)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ENERGY FLUX - ERGS/SQ.CM/SEC
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44-60A (EXP6)
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2-10A (EXP13)
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0400
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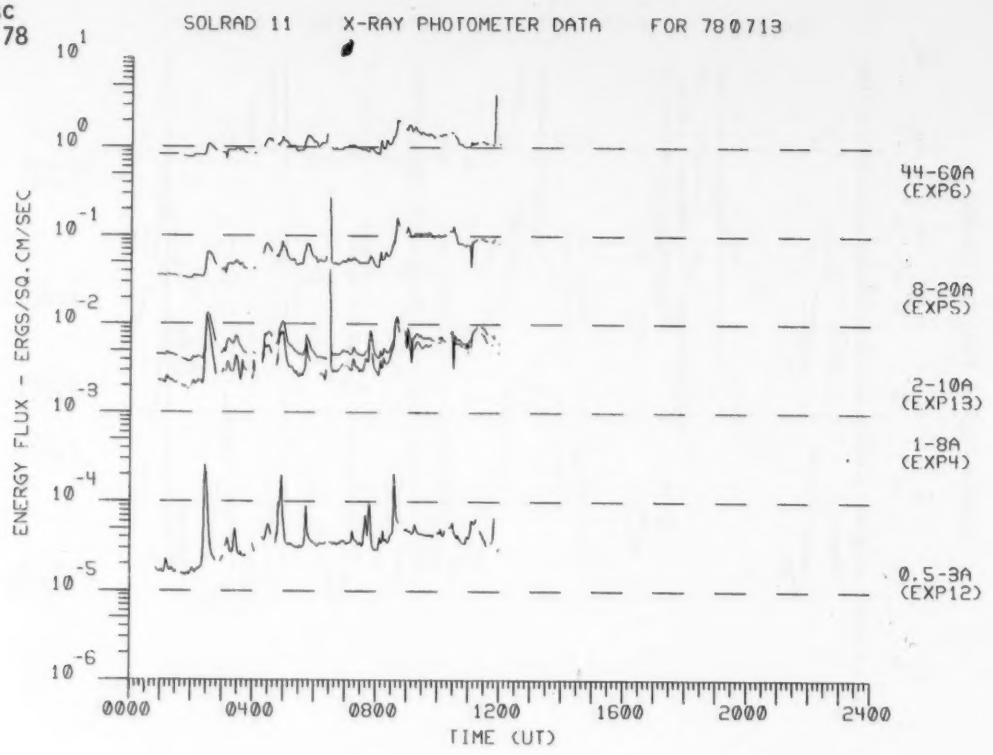
TIME (UT)

88
Misc
Jul 78

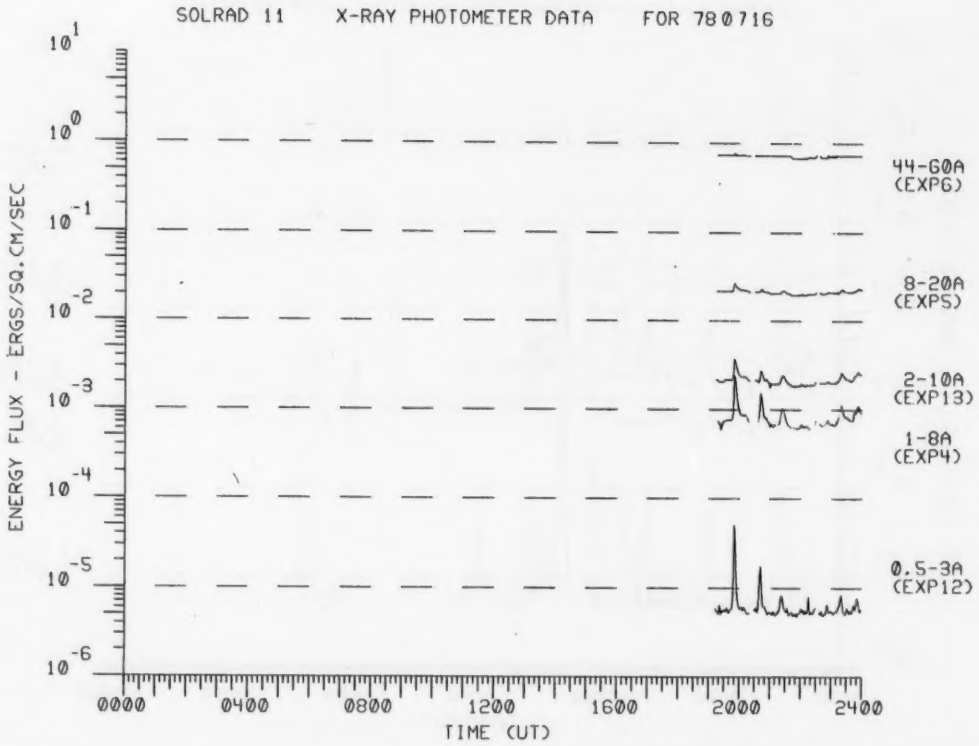


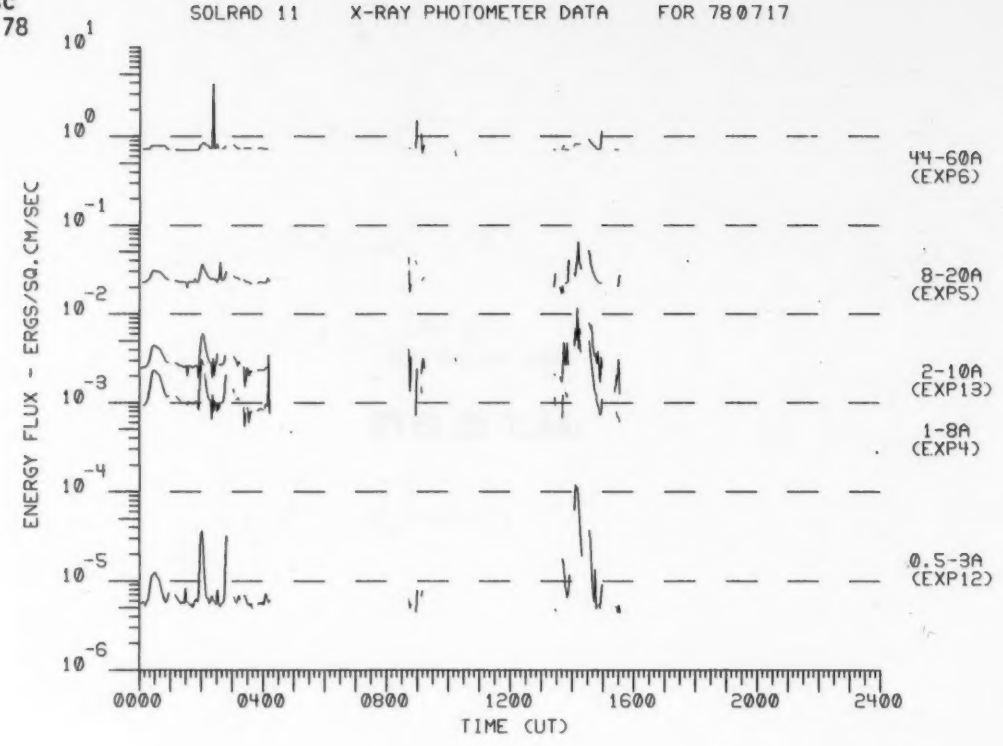
DATA MISSING FOR

JULY 14, 1978

DATA MISSING FOR

JULY 15, 1978

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ENERGY FLUX - ERGS/SQ.CM/SEC
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10^{-1}
10^{-2}
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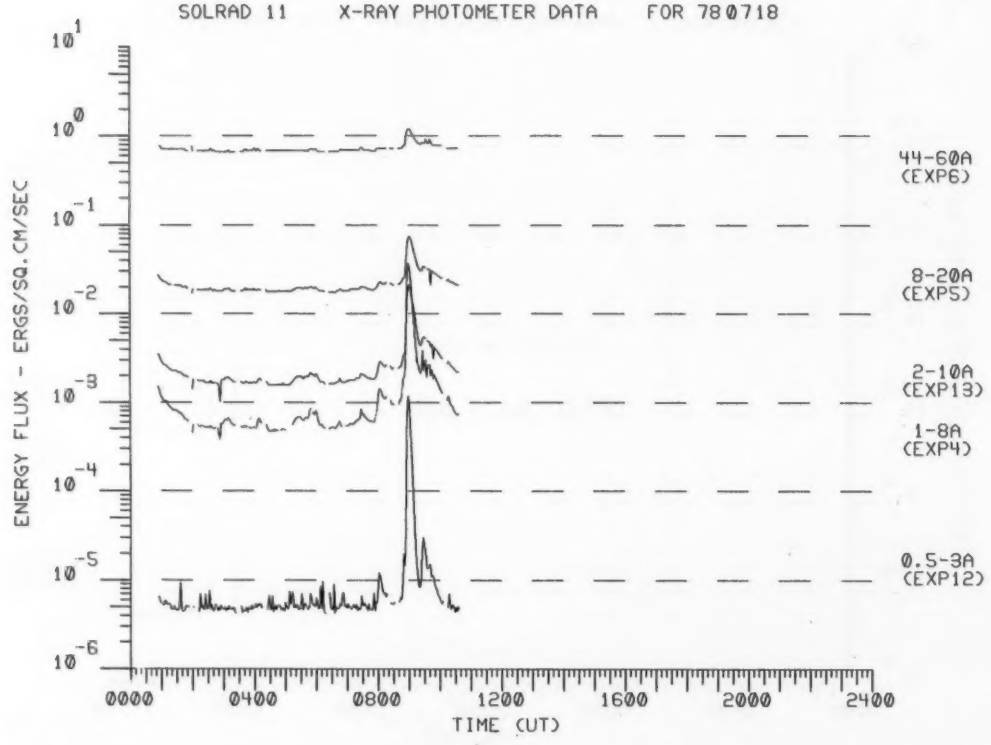
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)


SOLRAD 11 X-RAY PHOTOMETER DATA FOR 780718
ENERGY FLUX - ERGS/SQ.CM/SEC
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10^{-1}
10^{-2}
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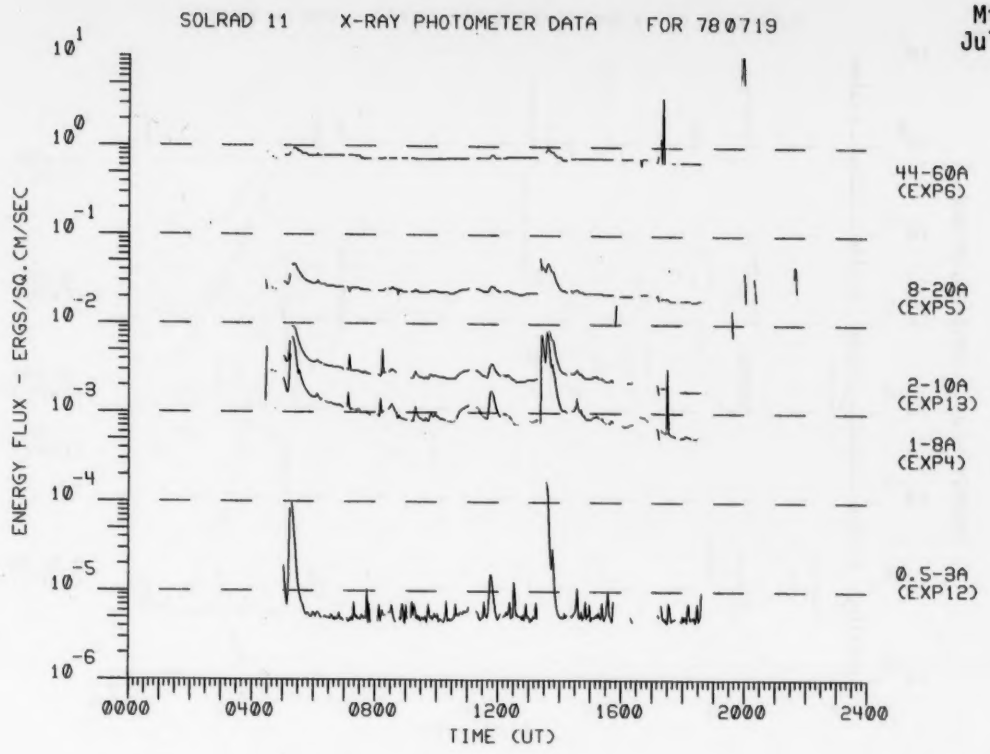
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)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ENERGY FLUX - ERGS/SQ.CM/SEC
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10^{-1}
10^{-2}
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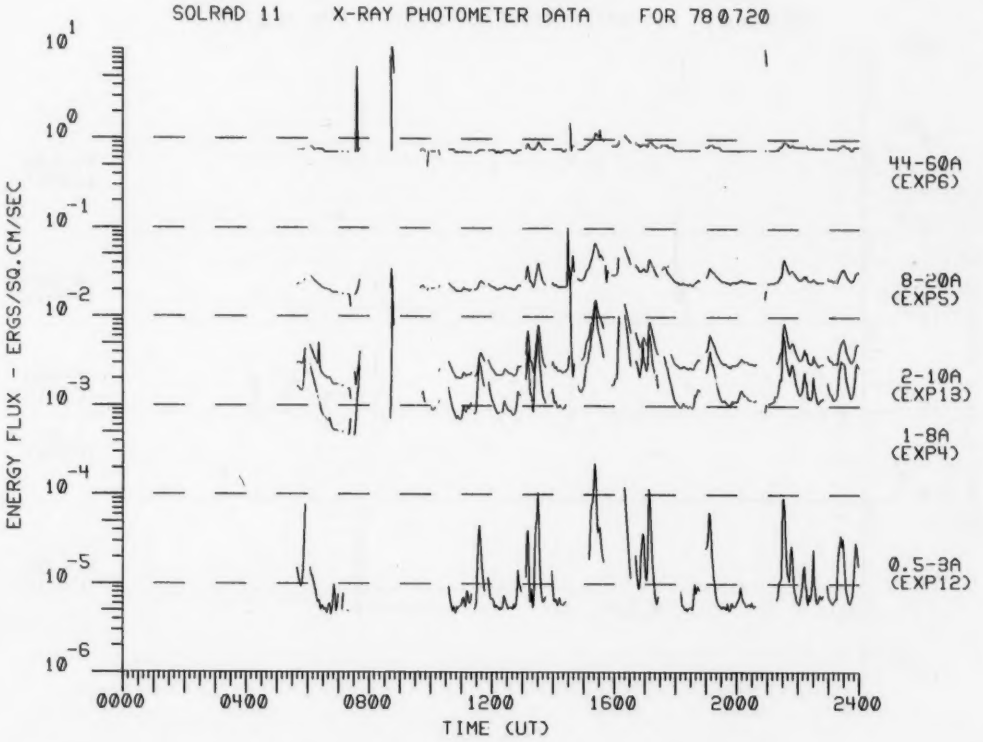
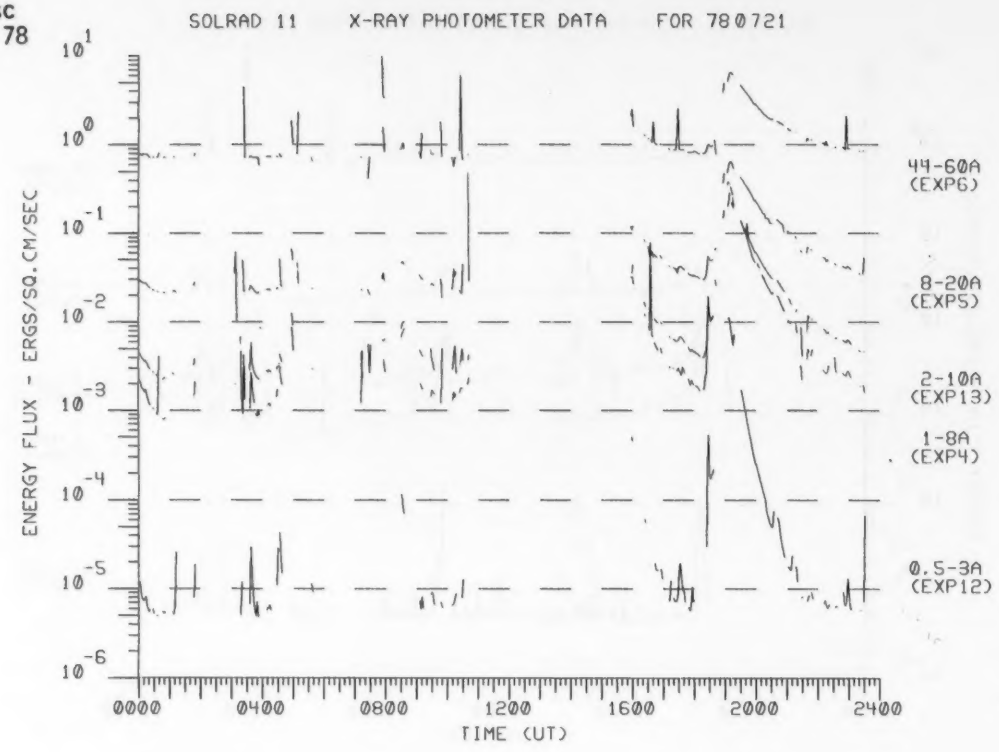
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)


SOLRAD 11 X-RAY PHOTOMETER DATA FOR 780720
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)


SOLRAD 11 X-RAY PHOTOMETER DATA FOR 780721
ENERGY FLUX - ERGS/SQ.CM/SEC
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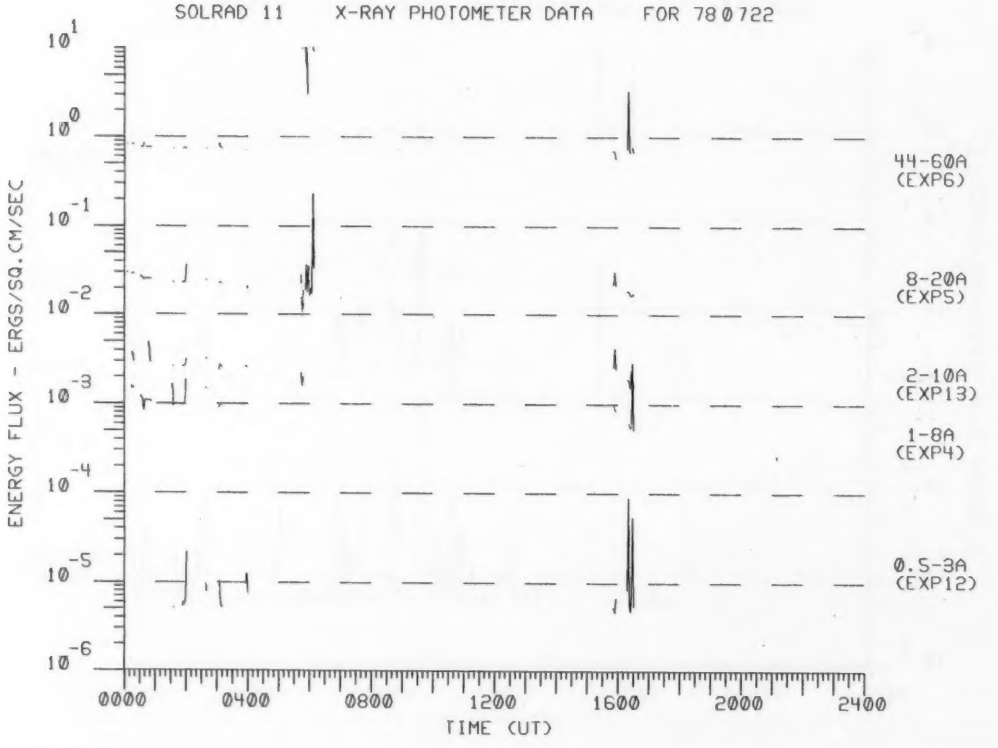
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)


SOLRAD 11 X-RAY PHOTOMETER DATA FOR 780722
ENERGY FLUX - ERGS/SQ.CM/SEC
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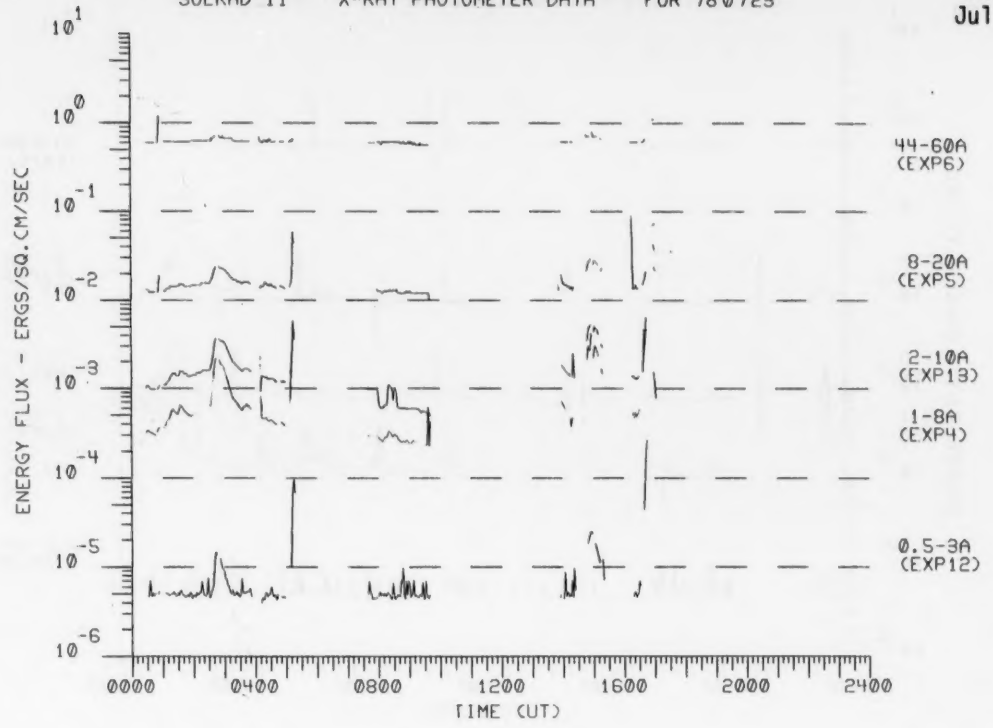
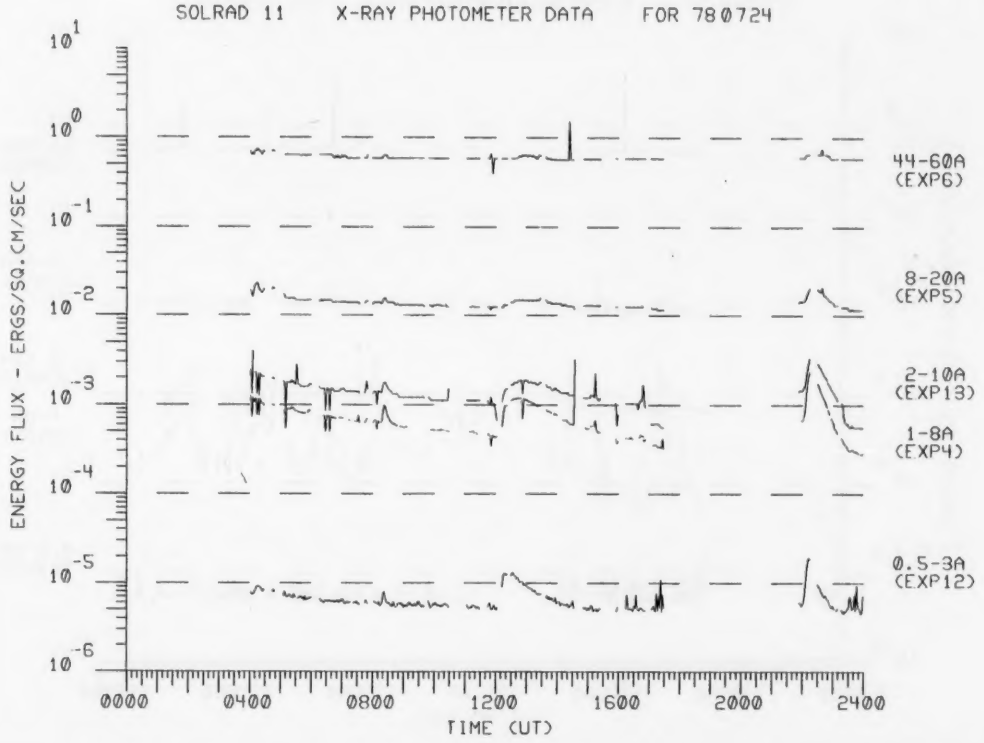
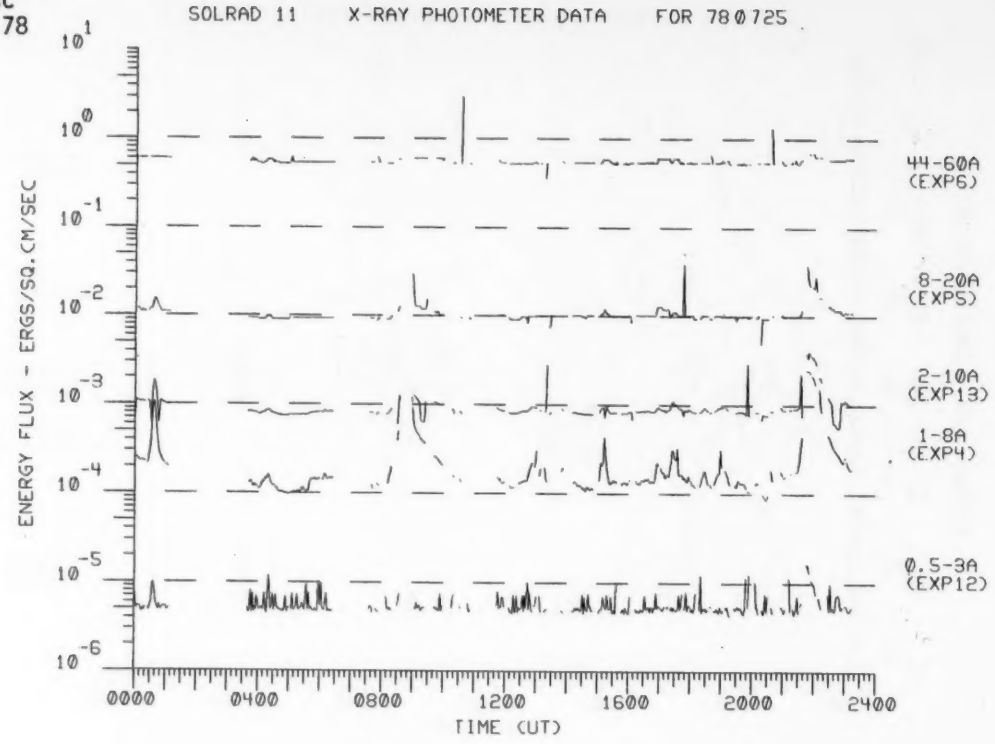
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)

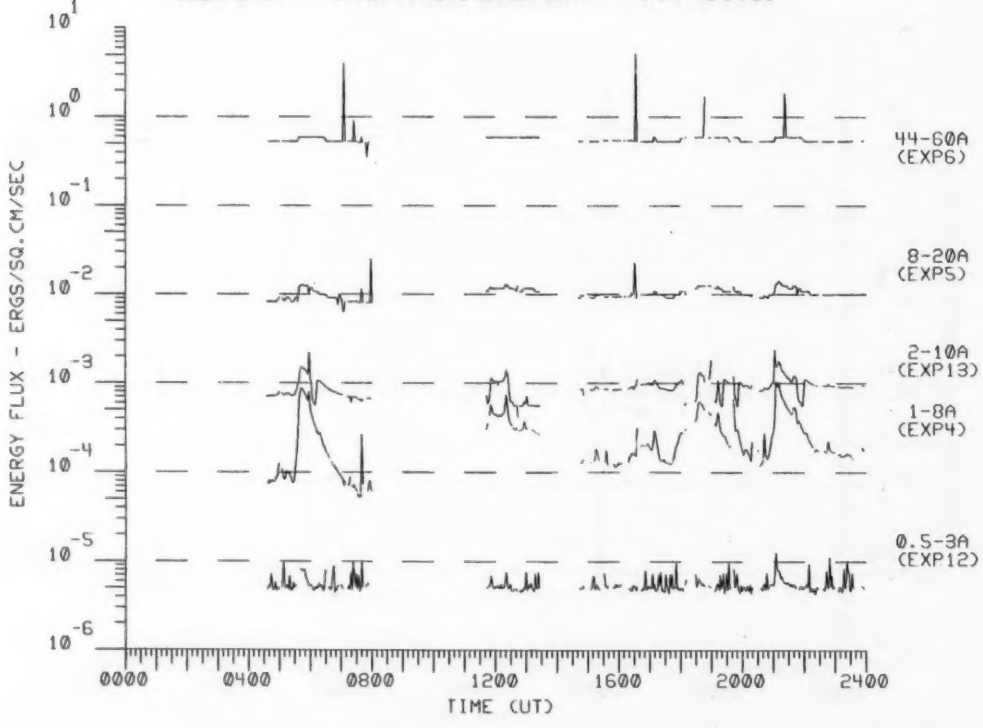

SOLRAD 11 X-RAY PHOTOMETER DATA FOR 780723
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)


SOLRAD 11 X-RAY PHOTOMETER DATA FOR 780724
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)

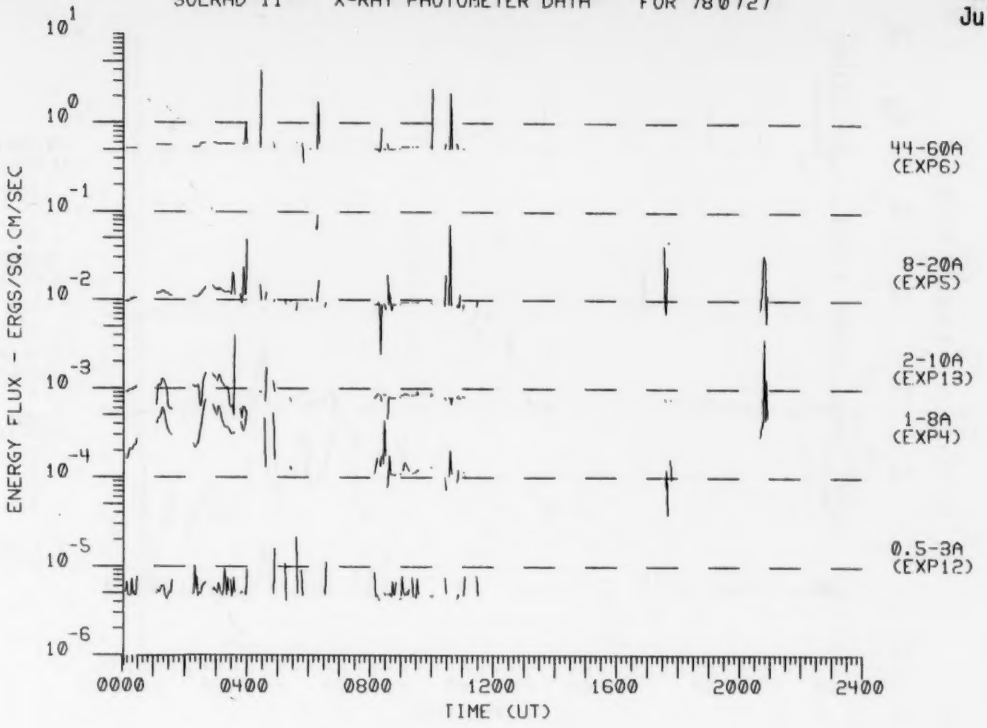
SOLRAD 11 X-RAY PHOTOMETER DATA FOR 780725



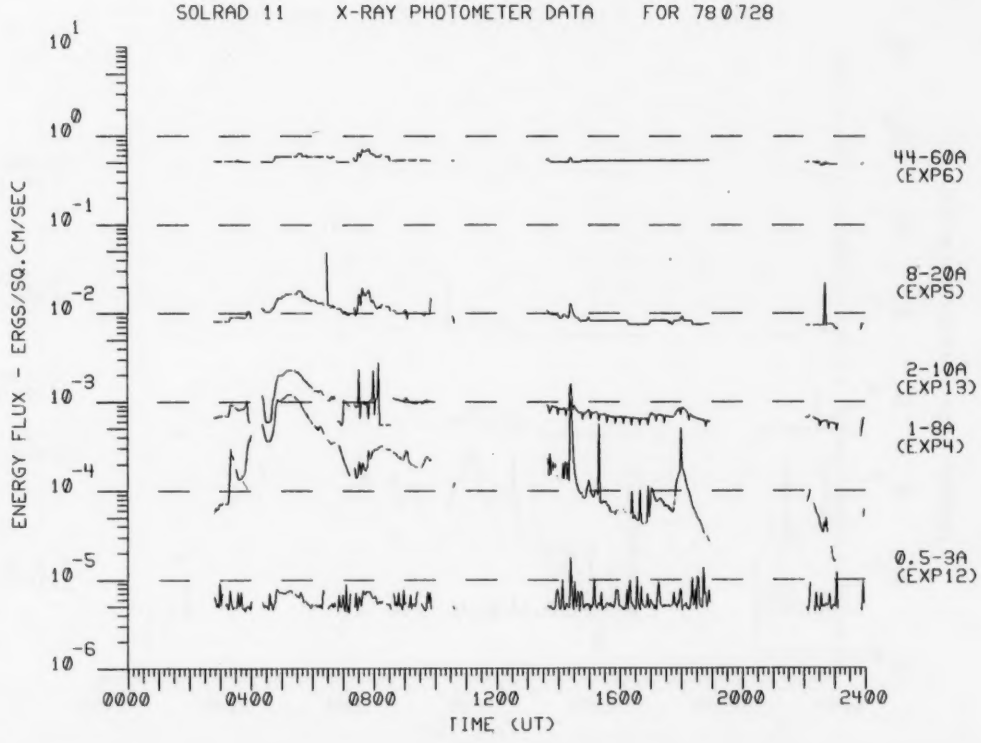
SOLRAD 11 X-RAY PHOTOMETER DATA FOR 780726

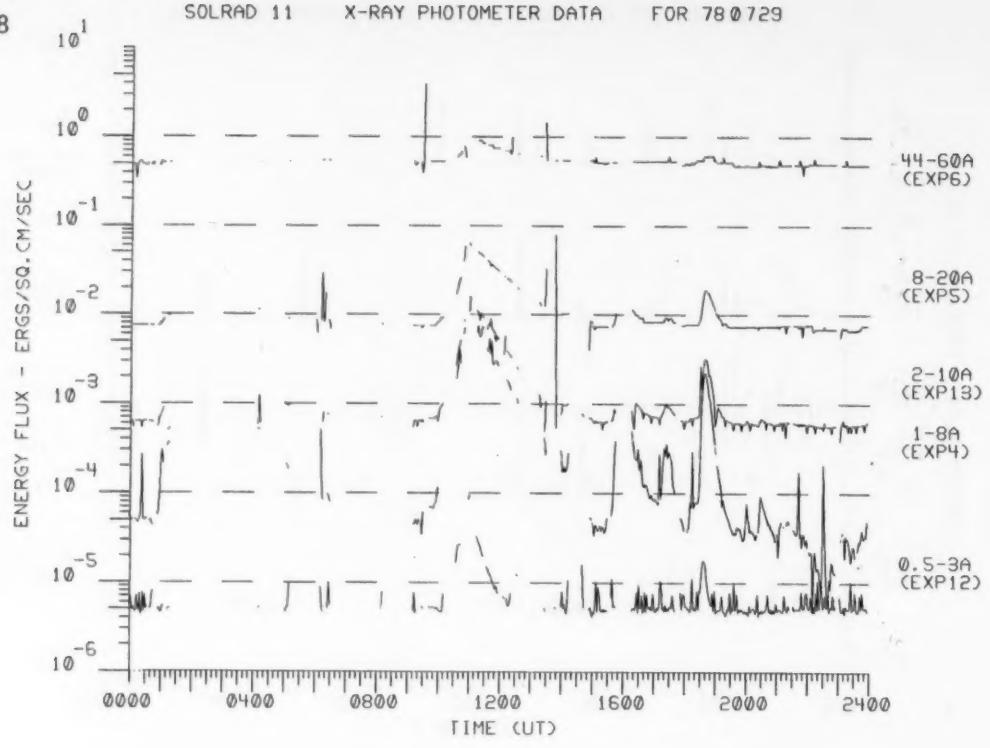


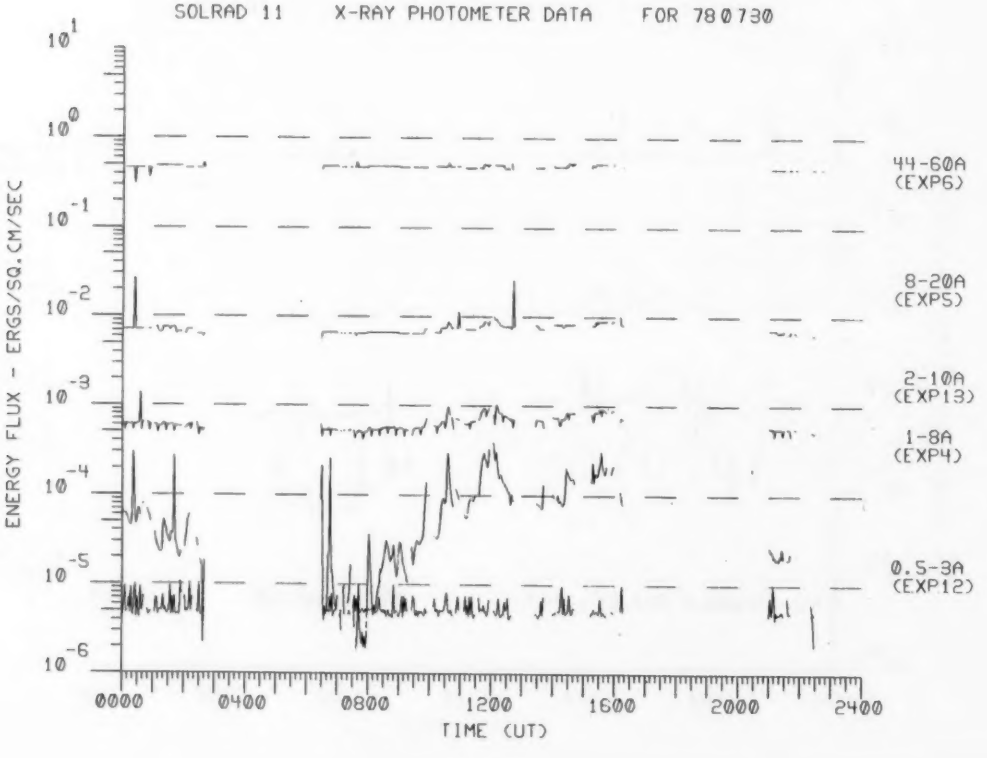
SOLRAD 11 X-RAY PHOTOMETER DATA FOR 780727

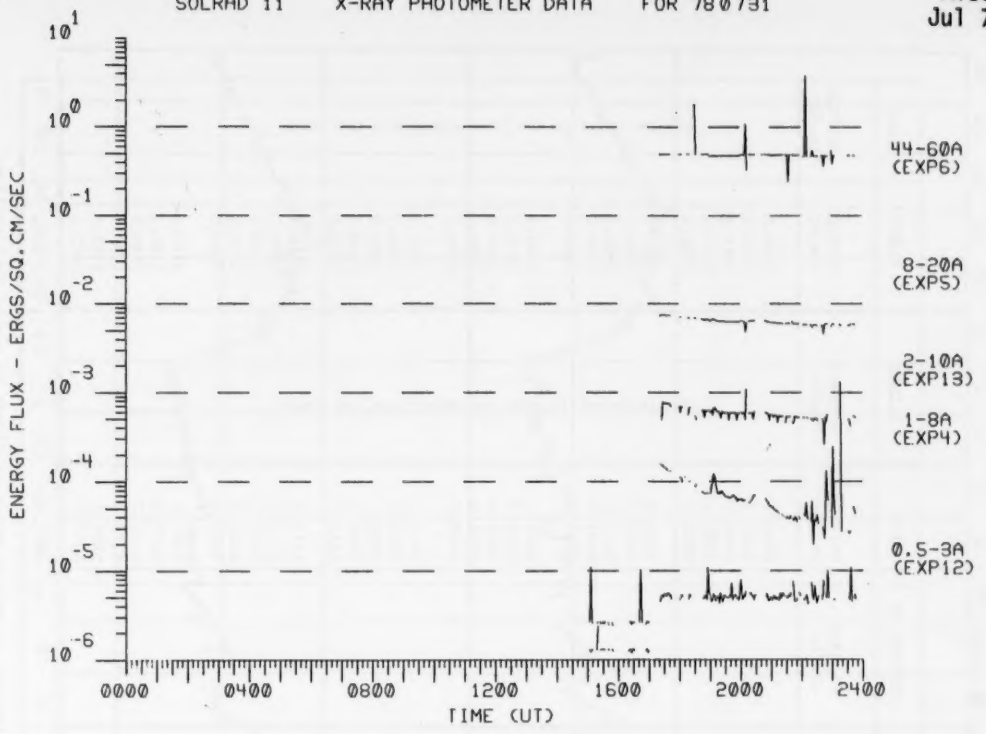


SOLRAD 11 X-RAY PHOTOMETER DATA FOR 780728




SOLRAD 11 X-RAY PHOTOMETER DATA FOR 780729
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)


SOLRAD 11 X-RAY PHOTOMETER DATA FOR 780730
ENERGY FLUX - ERGS/SQ.CM/SEC
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
44-60A (EXP6)
8-20A (EXP5)
2-10A (EXP13)
1-8A (EXP4)
0.5-3A (EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)


SOLRAD 11 X-RAY PHOTOMETER DATA FOR 780731
ENERGY FLUX - ERGS/SQ.CM/SEC
10^1
10^0
10^-1
10^-2
10^-3
10^-4
10^-5
10^-6
44-60A
(EXP6)
8-20A
(EXP5)
2-10A
(EXP13)
1-8A
(EXP4)
0.5-3A
(EXP12)
0000
0400
0800
1200
1600
2000
2400
TIME (UT)

COSMIC RAY INDICES
(Neutron Monitors)

	THULE	ALERT	DEEP RIVER	CALGARY	SULPHUR MT	KIEL	CLIMAX	TOKYO	KULA
July 1978	Average cts/hr	Average cts/hr	Average cts/hr	Average cts/hr	Average cts/hr	Average cts/hr	Average cts/hr	Average cts/hr	Average cts/hr
1		7118.9	6701.9			6046.7		3535.8	
2		7140.0	6740.9			6069.4		3544.0	
3		7166.0	6749.7			6100.0		3546.2	
4		7132.7	6160.1			6086.1		3565.1	
5		7043.6	6668.8			6052.8		3555.5	
6		7137.0	6693.7			6070.3		3545.2	
7		7141.0	6721.2			6112.2		3545.7	
8		7219.9	6770.2			6147.1		3560.3	
9		7229.8	6776.8			6157.9		3554.0	
10		7210.2	6782.6			6143.5		3554.8	
11		7258.9	6839.0			6165.1		3561.4	
12		7283.9	6865.8			6166.8		3576.2	
13		7048.2	6663.9			6015.4		3538.8	
14		6893.2	6485.2			5885.0		3500.0	
15		6856.5	6449.5			5849.0		3516.1	
16		6936.5	6515.1			5911.5		3534.2	
17		7027.6	6616.2			5967.4		3554.9	
18		7125.3	6704.4			6061.4		3567.8	
19		7157.6	6733.7			6088.5		3568.7	
20		7197.6	6724.2			6112.5		3572.1	
21		7208.5	6744.9			6114.2		3564.8	
22		7232.3	6765.4			6112.3		3570.7	
23		7228.1	6741.1			6107.2		3568.7	
24		7214.6	6786.8			6120.6		3571.6	
25		7250.6	6803.3			6145.4		3580.9	
26		7257.9	6810.4			6167.4		3584.4	
27		7277.0	6849.7			6175.0		3586.3	
28		7309.6	5877.4			6170.2		3586.9	
29		7346.5	6891.7			6179.6		3590.6	
30		7361.6	6913.2			6204.6		3596.8	
31		7361.9	6955.5			6252.1		3591.3	
MEAN		7173.3	6725.9			6095.4		3561.0	

Data not available at time of publication. (THULE, CALGARY, SULPHUR MT, CLIMAX, KULA)

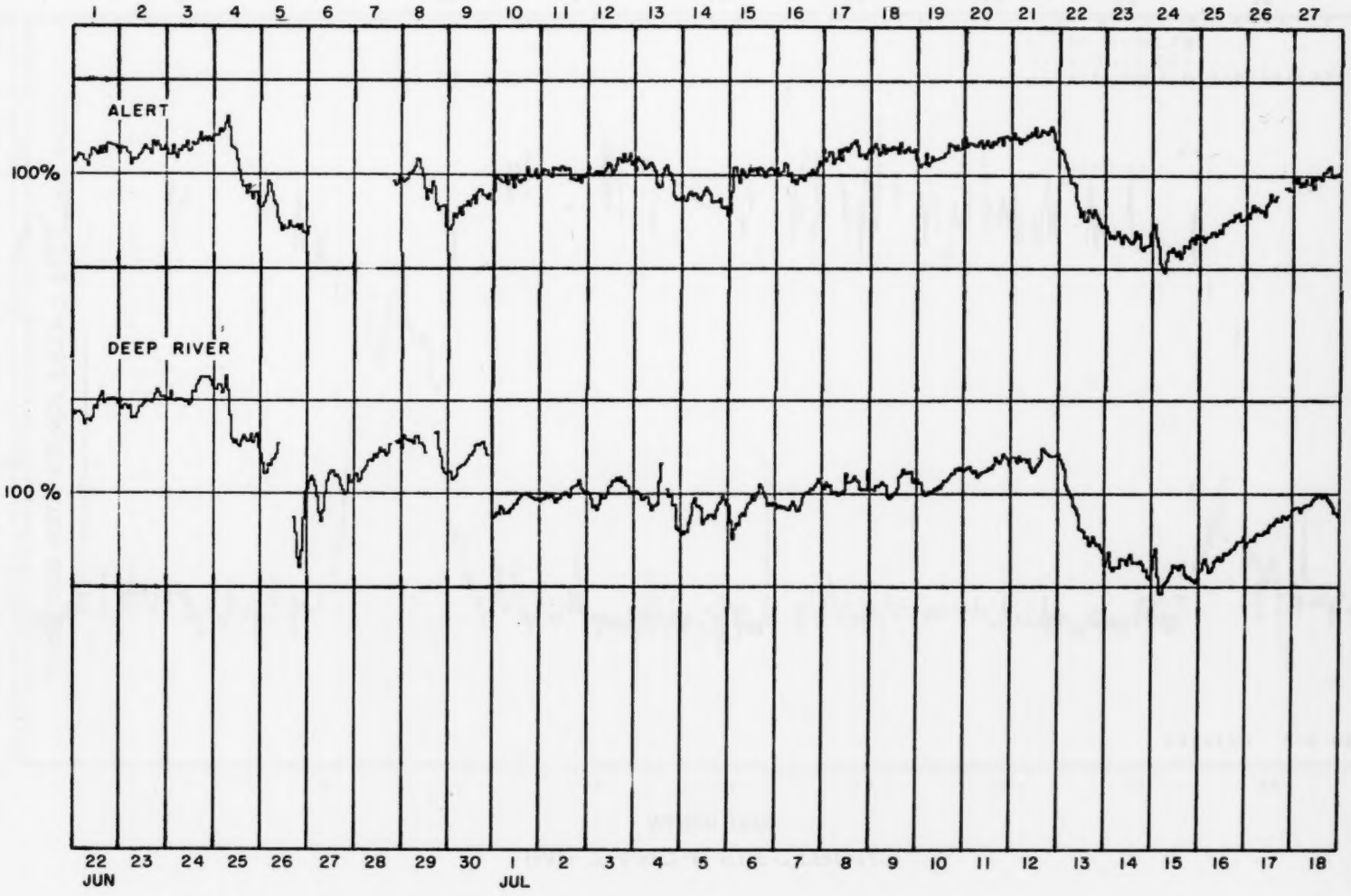
( ) Number of hours for which data are available if less than 24. Number of Section Hours at Climax if sum of both sections is less than 40 hours.

Notes: Thule, Alert, Calgary, Sulphur Mountain, Kiel, Climax and Kula Scaling Factors = 100. Deep River Scaling Factor = 300. Tokyo Scaling Factor = 256.

Tokyo Scaling Factor = 256.

COSMIC RAY INDICES
(Neutron Monitors)

Bartels Rotation 1981 (June-July 1978)

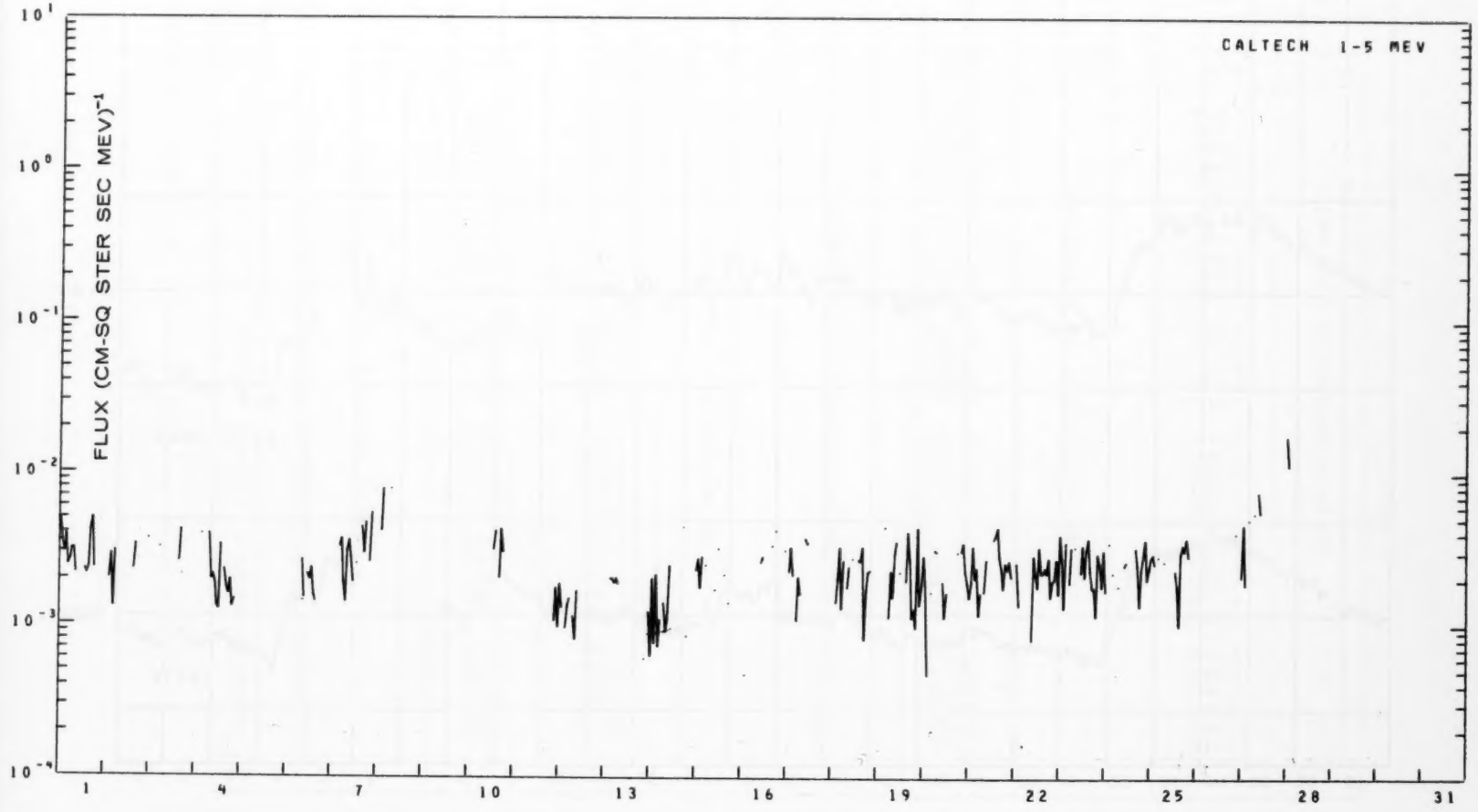


99
Misc
Jul 78

IMP 7 AND 8 ELECTRONS

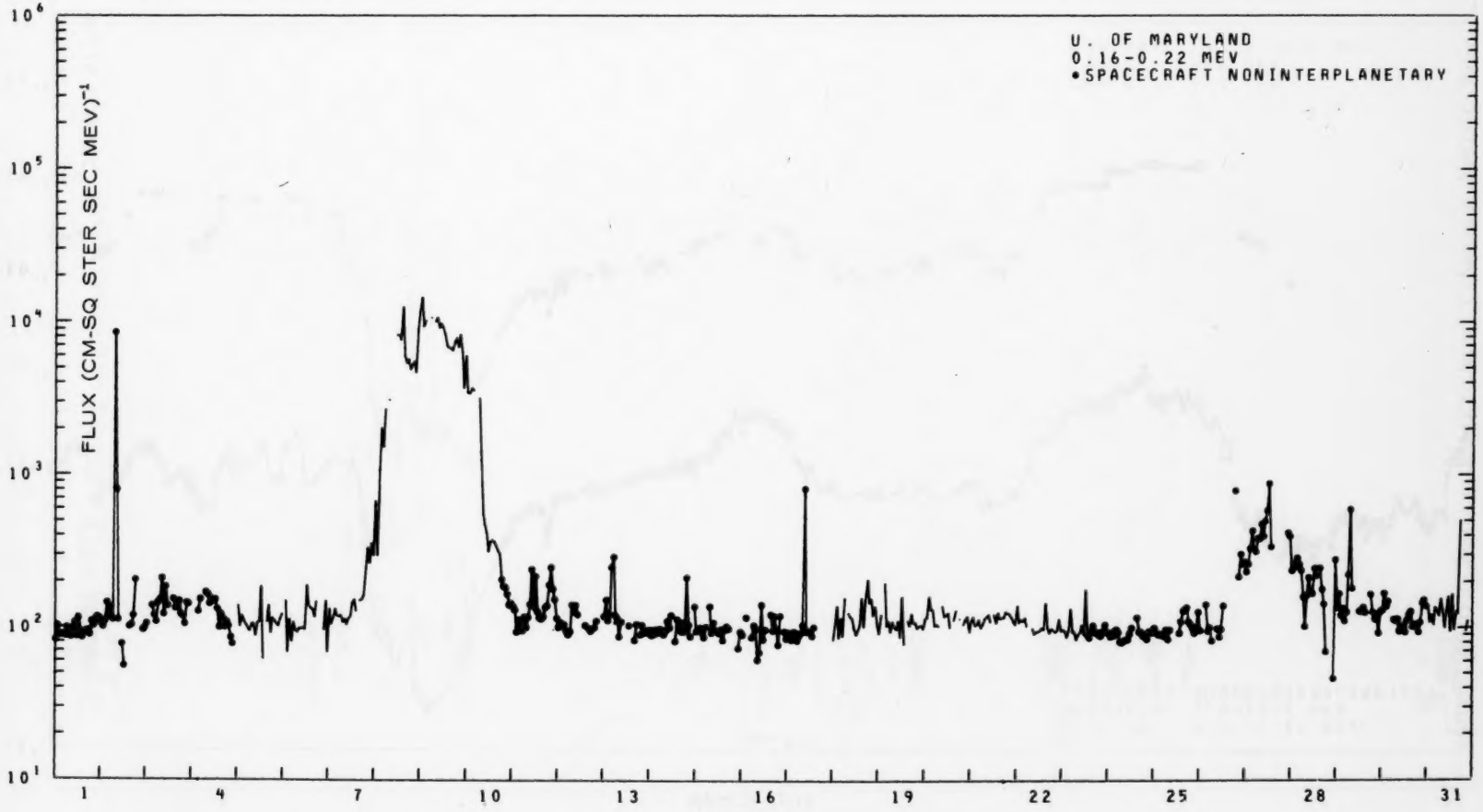
MARCH 1978

100
Misc
Mar 78



IMP 7 AND 8 LOW ENERGY PROTONS

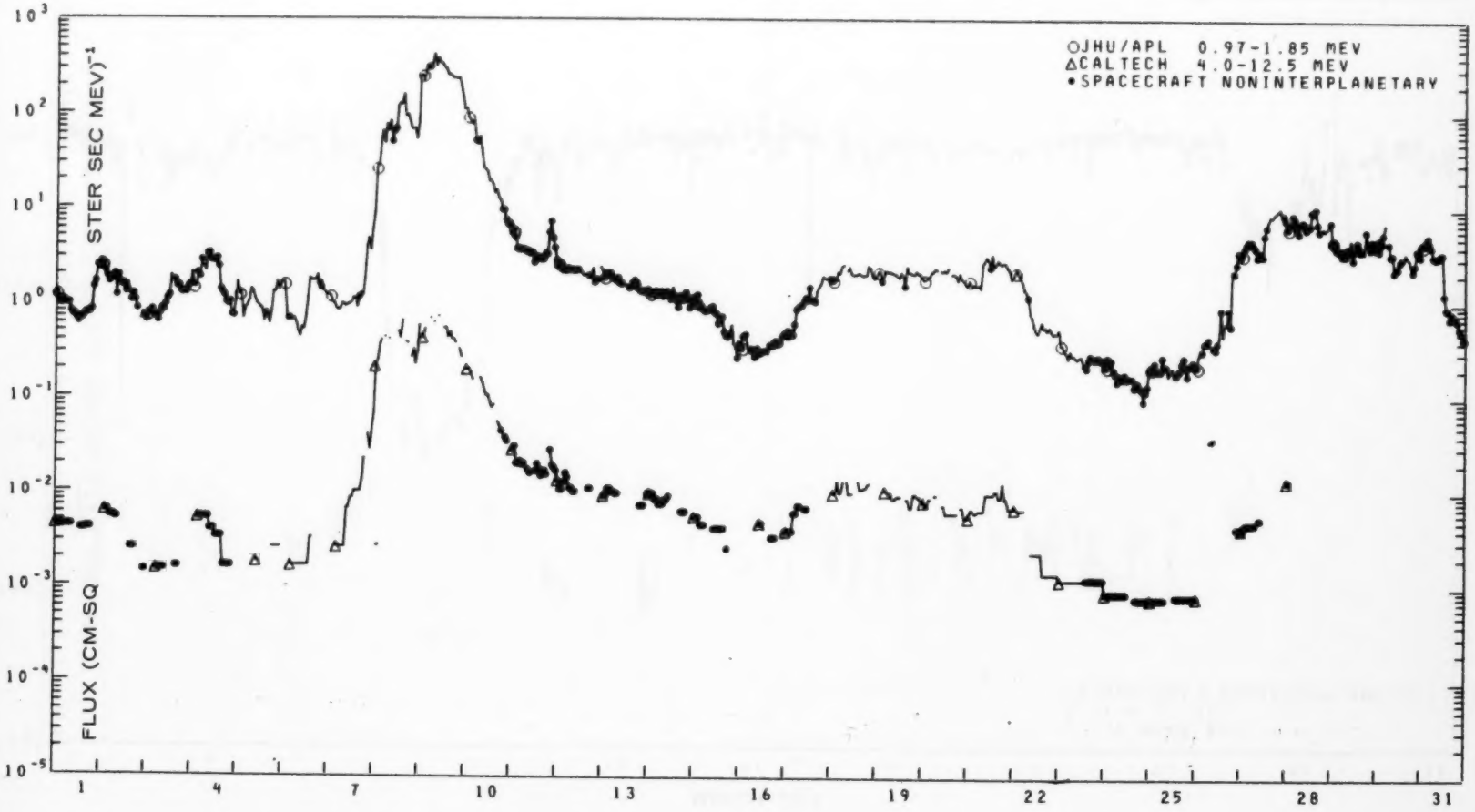
MARCH 1978



101
Misc
Mar 78

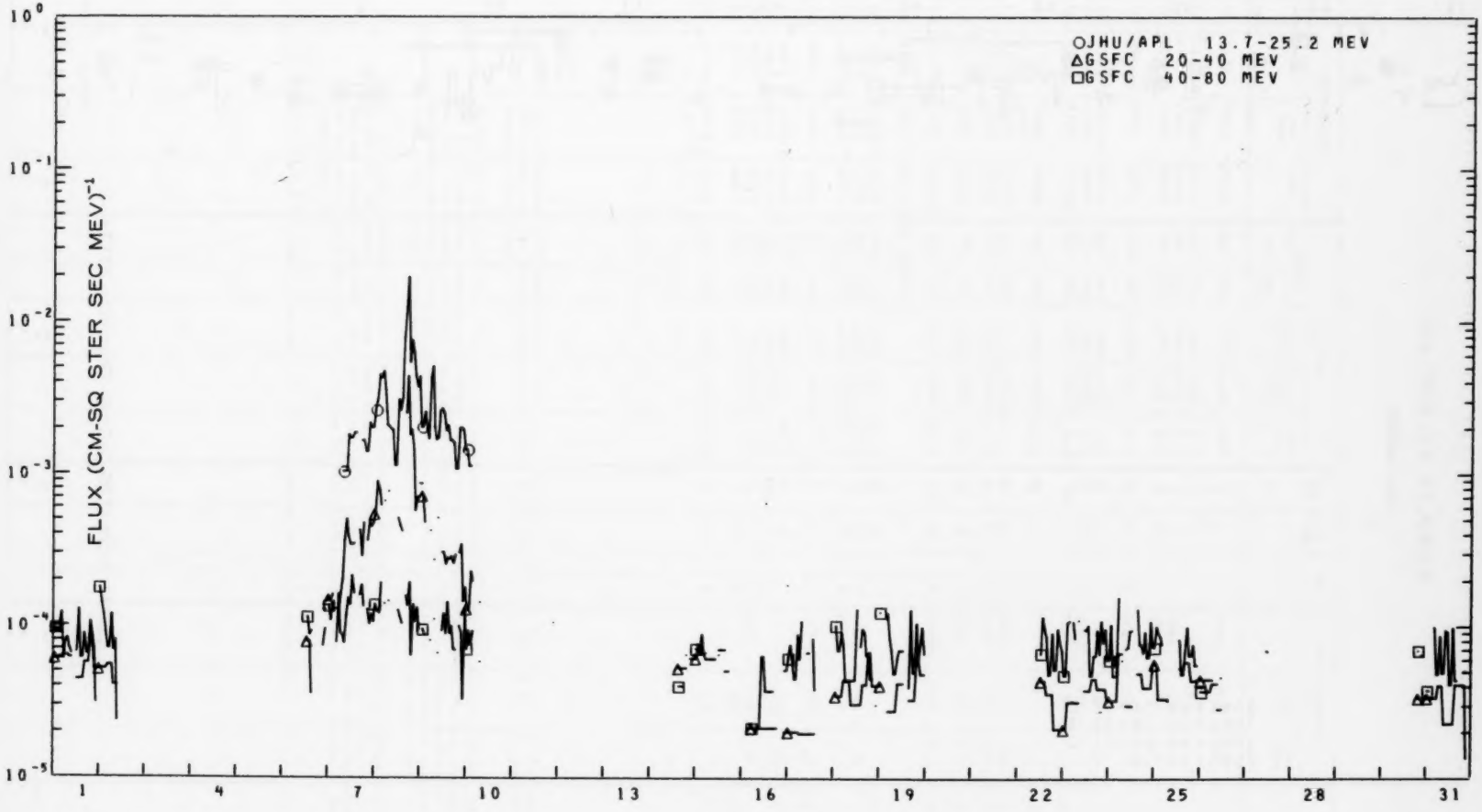
IMP 7 AND 8 INTERMEDIATE ENERGY PROTONS

MARCH 1978



IMP 7 AND 8 HIGH ENERGY PROTONS

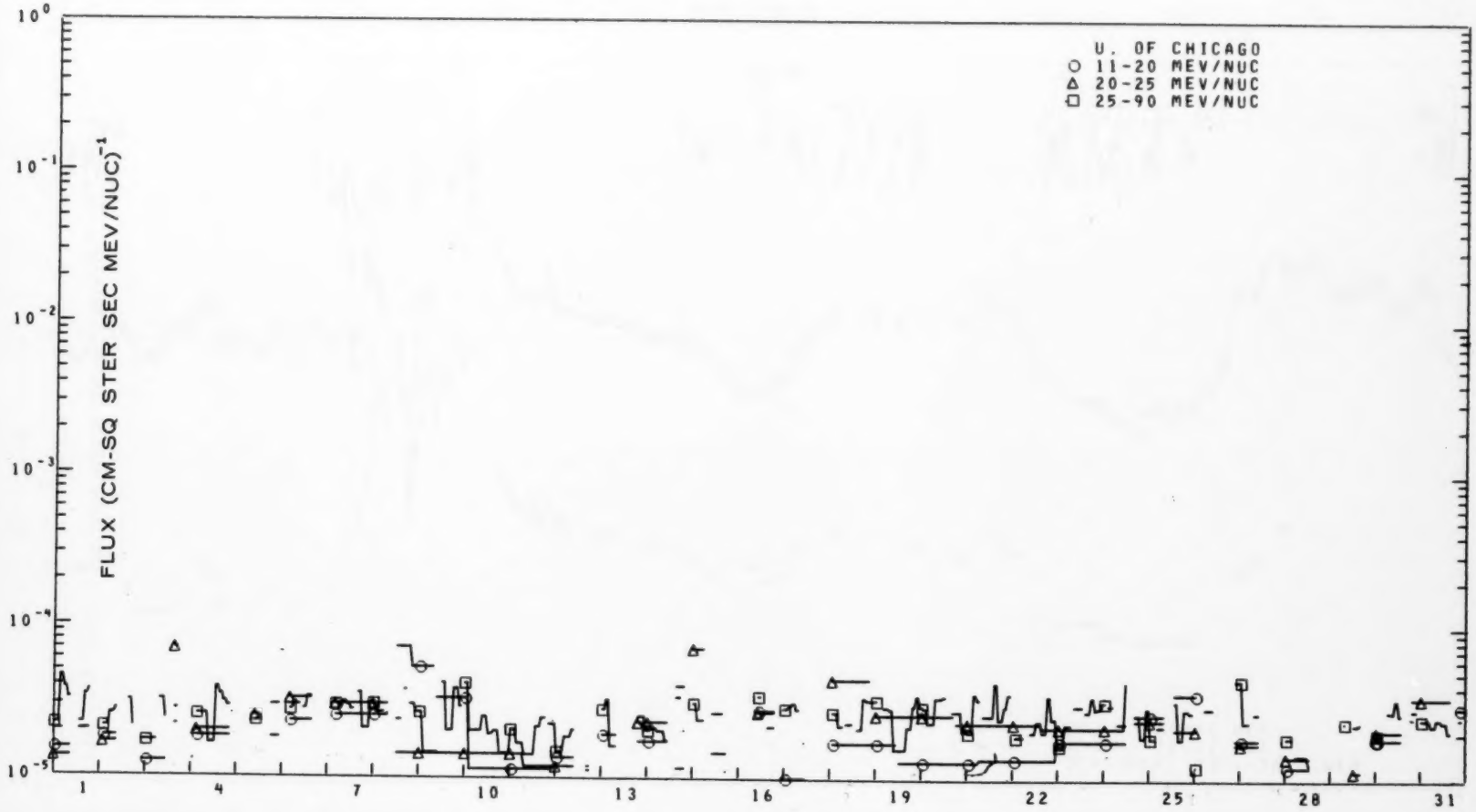
MARCH 1978



103
Misc
Mar 78

IMP 7 AND 8 ALPHA PARTICLES

MARCH 1978



Hα SOLAR FLARES

FEBRUARY 1978

OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IMPOR-TANCE	OBS.		MEASUREMENTS			REMARKS	
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP DAY	MIN.		CONC	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR AREA Sq. Deg.		
	FEB																	
740 HTPR	03	0837	0840	0843	N20	E60	.903	15135	7.9	6	-F		C	0840	50	1.0		Y5
GRP65741	03	0837+0	0840+1	0845	N27	E66	.950	15134	8.3	8	-F				50			
MONT	03	0837	0841	0846	N27	E67	.955	15134	8.4	9	-F		C	0841	50			
HTPR	03	0837	0840	0843	N27	E66	.950	15134	8.3	6	-F		C	0840	50	1.1		
860 CULG	08	0041	0045	0051	N19	W87	1.000	15125	1.5	10	-F		C	0045	30			Y5
GRP65870	08	0714>9	0728+1	0740	N17	W79	.989	15126	2.4	26	-N				80		DJV	
CULG	08	0714	0729	0740	N17	W79	.989	15126	2.4	26	1N		C	0729	70			
ABST	08	0727	0728	0736D	N17	W80	.991	15126	2.3	90	-N		P	0728	96		DJV	
GRP65989	12	0742	0808 0816	0838	N17	W12	.446	15139	11.4	56	-F						JK	
ABST	12	0742	0816	0838	N16	W10	.419	15139	11.6	56	-F		C	0816	70	.8	DJK	
ABST	12	0804	0808	0838	N19	W14	.487	15139	11.3	34	-F		C	0808	87	1.0	DJ	
245 ABST	26	0804	0805	0814	N20	W35	.693	15161	23.7	10	-F		C	0805	87	1.2	DJK	Y5
246 ABST	26	0833E	0835	0856D	N23	W23	.611	15161	24.6	23D	-F		P	0835	79	1.0	DJ	Y5
	26	0900	0921	NO FLARE PATROL														
GRP66249	26	1250+7	1300+3	1317	N16	E31	.622	15167	28.9	27	-F						D	
HTPR	26	1250	1300	1323	N16	E31	.622	15167	28.9	33	-F	*	C	1300	30	.3		
LVOV	26	1257	1303	1311	N16	E31	.622	15167	28.9	14	-F	*	C	1303	150	1.8	D	
250 HTPR	26	1251	1256	1314	S16	E14	.281	15163	27.6	23	-F		C	1256	20	.2	E	Y5
GRP66256	26	2043>9	2102+6	2117	S25	E53	.805	1570	99.8	34	-N				30	.5	F	
RAMY	26	2043	2102	2117D	S25	E52	.795	1570	2.8	34D	-B	*	C		87			
CULG	26	2058	2107	2149	S24	E55	.821	1570	3.0	51	-F	*	C	2107	30	.5		
PALE	26	2104	2108	2112	S26	E51	.788	1570	2.7	8	-N	*	C		32		F	
257 RAMY	26	2049	2058	2107	N19	W35	.686	15161	24.2	18	-N	2	C		60			Y5

ERRATA to the February 1978 H-alpha solar flare data (published in SGD 408 Part II, pages 8-34, August 1978 issue) and the February 1978 Regional Flare Index (published in SGD 409 Part II, page 47, September 1978 issue):

Because the amount of solar flare data has increased drastically and because the computer programs for processing these data are very complicated, some errors will occasionally survive the editing routine. The February 1978 data had a large number of changes needed in the data processing. The publication deadline forced our staff to complete all changes in a short time despite problems that arose. Unfortunately, some major errors were overlooked. The corrected data appear here.

On this page a number of groups are republished mainly because the McMath Region numbers were wrong in the SGD 408 issue. The solar flare data on the following pages are republished because the group line was offset in SGD 408, e.g., the group line for GRP65996 appeared with the data for GRP65995. The Regional Flare Index data was erroneous because of this group line problem. Corrected data are republished here.

We apologize for these errors and will see that they do not repeat themselves.

Hα SOLAR FLARES

FEBRUARY 1978

OBSERV-ATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS	
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMP. DAY	MIN.		CONC.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR AREA Sq. Deg.		
	FEB																	
GRP65990	12	0937	0941	1000	N12	W09	.354	15139	11.7	23	1N						EJZ	
ABST	12	0937	0941	0957	N13	W12	.391	15139	11.5	20	-N		C	0941	87	1.0	EJZ	
ABST	12	0937	0941	1000	N12	W06	.336	15139	12.0	23	1N		C	0941	306	3.4	EJ	
991 ABST	12	0943	0944	0946	N17	W13	.453	15139	11.4	3	-F		C	0944	96	1.1	DV	Y5
992 ABST	12	1007E	1011	1013D	N17	W54	.852	15135	8.4	6D	-F		P	1011	87	2.0	FJ	Y5
	12	1014	1024	NO FLARE PATROL														
993 ABST	12	1030E	1033	1100D	N13	W12	.391	15139	11.5	30D	-N		P	1033	96	1.1	EJKZ	Y5
GRP65994	12	1103	1105 1201	1205	N13	W18	.448	15139	11.1	62	1B						E	
HTPR	12	1103	1105	1205	N13	W19	.458	15139	11.0	62	-B		C	1105	120	1.2		
CATA	12	1105E	1105	1105D	N11	W17	.414	15139	11.2		1B	2	P	1105	196	2.2		
ABST	12	1113E	1113	1128D	N13	W17	.437	15139	11.2	15D	1N		P	1113	261	2.9	BE	
HTPR	12	1153	1201	1205	N15	W22	.511	15139	10.8	12	-F		C	1201	20	.2		
GRP65995	12	1307	1310	1347	N14	W05	.363	15139	12.2	40	1N						EK	
HTPR	12	1307	1310	1346	N14	W04	.359	15139	12.2	39	1N		C	1310	320	3.2	EK	
MCMA	12	1332E		1348	N14	W05	.363	15139	12.2	16D	-N		C	1332	100	1.1	E	
996 MCMA	12	1405E		1430D	N28	W53	.881	15134	8.6	25D	-F		C	1411	50	1.2	E	Y5
997 MCMA	12	1520E		1600D	N14	W15	.430	15139	11.5	40D	-F		C	1525	120	1.4	E	Y5
998 MCMA	12	1603	1611	1618D	N14	W15	.430	15139	11.5	15D	-N		C	1611	100	1.2	E	Y5
	12	1618	1642	NO FLARE PATROL														
	12	1653	1726	NO FLARE PATROL														
	12	1736	1755	NO FLARE PATROL														
	12	1807	1823	NO FLARE PATROL														
999 MCMA	12	1830E		1837D	N14	W08	.377	15139	12.2	7D	-N		C	1832	50	.6	E	Y5
	12	1837	1845	NO FLARE PATROL														
0 MCMA	12	1846	1853	1902D	N13	W17	.437	15139	11.5	16D	1B		C	1853	175	2.0	EKL	Y5
	12	1902	2043	NO FLARE PATROL														
1 CULG	12	2036E	2040U	2052	N13	W25	.525	15139	11.0	16D	-N		P	2040	40	.5		Y5
	12	2118	2124	NO FLARE PATROL														
2 CULG	12	2241	2253	2311	N14	W28	.568	15139	10.8	30	1N		C	2253	240	2.9		Y5
3 CULG	12	2338	2345	0009	N27	W69	.964	15134	7.8	31	-N		C	2345	20			Y5
GRP66004	13	0115>9	0143>9 0218	0400D	N15	W20	.491	15139	11.6	165	2N						FHIKZ	
CULG	13	0115	0218	0520	N13	W07	.357	15139	12.5	245	2N		C	0218	550	6.1	F	
MITK	13	0129	0159	0254D	N18	W16	.490	15139	11.9	85D	1N		C	0159	260	3.1	FI	
MITK	13	0131	0156	0254D	N14	W23	.513	15139	11.3	83D	1N		C	015E	220	2.6	FIZ	
MANI	13	0139	0151	0400	N13	W24	.514	15139	11.3	141	1B	3	P		200	2.4		
MANI	13	0139	0143	0400	N13	W24	.514	15139	11.3	141	1N	3	P		180	2.1	F	
MANI	13	0140	0150	0400	N19	W14	.488	15139	12.0	140	1B	3	P		280	3.3		
MANI	13	0140	0143	0400	N19	W14	.488	15139	12.0	140	-F	3	P		100	1.2		
KODA	13	0146	0239	0355	N16	W21	.512	15139	11.5	129	2N		P				EHK	
MITK	13	0251		0254D	N12	W21	.470	15139	11.5	3D	-N		P	0254	120	1.4	I	
CULG	13	0340	0353	0414	N14	W31	.603	15139	10.8	34	-F		C	0358	120	1.5	H	
5 CULG	13	0316	0320	0330	N27	W69	.965	15139	8.0	14	-F		C	0320	15			Y5
GRP66006	13	0406+2	0413+1	0428	N12	W30	.577	15139	10.9	22	-N				90	1.1	V	
CULG	13	0406	0413	0433	N12	W29	.565	15139	11.0	27	-N	*	C	0413	70	.8	V	
MANI	13	0408	0414	0422	N13	W32	.608	15139	10.8	14	-N	*	P		120	1.6		
7 MITK	13	0430E		0526	N18	W16	.490	15139	12.0	56D	1N		C	0430	350	4.1	FI	Y5
GRP66008	13	0436+1	0446+1	0455	N13	W29	.572	15139	11.0	19	-N				50	.6	EHI	
MITK	13	0436	0446	0452	N13	W29	.572	15139	11.0	16	-N	*	C	0446	50	.6	EHI	
CULG	13	0437	0447U	0458	N14	W30	.592	15139	10.9	21	-N	*	C	0447	60	.8		
9 CULG	13	0449	0454U	0505	N23	E78	.990	15152	19.1	16	-F		C	0454	20			Y5

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OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS		MEASUREMENTS			REMARKS	
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMR DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR AREA Sq. Deg.		
	FEB																	
10 MITK	13	0551	0601	0630	N12	W23	.493	15139	11.5	39	-N		C	0601	60	.7	EI	Y5
	13	0727	0732	NO FLARE PATROL														
GRP66011	13	0818E	0819+5	0843	N14	W14	.422	15139	12.3	25	-N				150	1.6	K	
HTPR	13	0818E	0819	0849	N14	W07	.372	15139	12.8	31D	-N		C	0819	120	1.2	EK	
MANI	13	0822E	0824	0836	N14	W14	.422	15139	12.3	14D	-N	3	P		180	2.1	F	
KANZ	13	0823E		0832D	N14	W16	.440	15139	12.1	9D	-N							
GRP66012	13	0836	0837 0840	0840D	N11	W28	.545	15139	11.3	4	-F							
MANI	13	0836	0837	0840D	N08	W25	.484	15139	11.5	4D	-F	3	P		40	.5		
MANI	13	0836E	0840	0840D	N14	W31	.603	15139	11.0	4D	-F	3	P		80	1.0		
13 HTPR	13	0858	0859	0902	N14	W31	.603	15139	11.0	4	-N		C	0859	20	.2		Y5
14 HTPR	13	0948	0950	1002	N14	W31	.603	15139	11.1	14	-F		C	0950	10	.1		Y5
15 HTPR	13	1036	1037	1045	N10	W27	.525	15139	11.4	9	-B		C	1037	50	.6	E	Y5
16 ZURI	13	1323E	1325	1343	N30	E90	1.002	15153	20.3	20D	?N		P	1325	100			Y5
	IMP 1 NO HTPR2 KANZ2																	
GRP66017	13	1325+5	1333+2	1341	N13	W20	.469	15139	12.1	16	-N						E	
ZURI	13	1325	1335	1341	N13	W19	.459	15139	12.1	16	-N		C	1335	180	2.1		
KANZ	13	1330	1334	1340	N14	W20	.480	15139	12.1	10	-F							
HTPR	13	1330	1333	1342	N12	W20	.459	15139	12.1	12	-N		C	1333	40	.4	E	
GRP66018	13	1415+0	1418+1	1430	N15	W31	.611	15139	11.3	15	-F						E	
ZURI	13	1415	1419	1421	N16	W36	.673	15139	10.9	6	1F		C	1419	290	4.0		
KANZ	13	1415	1418	1433	N15	W31	.611	15139	11.3	18	-F		C					
HTPR	13	1415	1418	1430	N15	W25	.544	15139	11.7	15	-F		C	1418	70		E	
19 ZURI	13	1439	1441	1447	N11	W28	.545	15139	11.5	8	-N		C	1441	60	.8		Y5
GRP66020	13	1451+0	1455	1459	N14	W34	.637	15139	11.1	8	-N							
ZURI	13	1451	1455	1459	N16	W36	.673	15139	10.9	8	1N		C	1455	200	2.8		
HTPR	13	1451E		1456D	N16	W39	.705	15139	10.7	5D	-F		C	1454	20	.2		
HTPR	13	1451E		1456D	N11	W28	.545	15139	11.5	5D	-F		C	1454	20	.2		
	13	1527	1532	NO FLARE PATROL														
	13	1533	1535	NO FLARE PATROL														
21 ZURI	13	1551	1553	1553D	N13	W27	.549	15139	11.6	2D	1N		P	1553	220	2.8		Y5
	13	1553	2054	NO FLARE PATROL														
GRP66022	13	2125	2131 2141	2150D	N12	W39	.683	15139	11.0	25	-N							
CULG	13	2125	2131	2145	N14	W40	.704	15139	10.9	20	-F		C	2131	80	1.1		
CULG	13	2130	2141	2150D	N11	W39	.678	15139	11.0	20D	-N		C	2141	20	.3		
	13	2149	2232	NO FLARE PATROL														
23 CULG	13	2237	2241	2257	N11	W39	.678	15139	11.0	20	-N		C	2241	30	.4		Y5
GRP66024	13	2318+4	2325+1 2331+2	2350	N14	W35	.649	15139	11.3	32	-N						FHJ	
CULG	13	2318	2333	2353	N13	W35	.642	15139	11.3	35	-N		C	2333	120	1.5	F	
VORO	13	2322	2326	2347	N12	W34	.625	15139	11.4	25	-B		C	2326	108	1.3	EH	
MANI	13	2325E	2325U	2340D	N13	W32	.608	15139	11.6	15D	-N	3	V		60	.8	F	
VORO	13	2327	2332	2342	N18	W36	.686	15139	11.3	15	1B		C	2332	170	2.3	EJ	
MANI	13	2330E	2331	2338D	N18	W37	.696	15139	11.2	8D	-N	3	V		50	.7		
GRP66025	14	0027+1	0029+0	0031	N14	W31	.604	15139	11.7	4	-N				35	.4	D	
CULG	14	0027	0029U	0029D	N14	W31	.604	15139	11.7	2D	-N		C	0029	20	.2		
VORO	14	0028	0029	0031	N15	W32	.622	15139	11.6	3	-B		C	0029	45	.5	D	
26 CULG	14	0112	0116	0123	N15	W41	.721	15139	11.0	11	-F		C	0116	20	.2	T	Y5
27 CULG	14	0144	0146	0150	N30	W80	.996	15134	8.1	6	-N		C	0146	30			Y5
GRP66028	14	0215>9	0229+4	0242	N17	W38	.700	15139	11.2	27	-N				45	.6	D	
CULG	14	0215	0233	0245	N18	W38	.706	15139	11.2	30	-F		C	0233	40	.5		
VORO	14	0225	0229	0238	N17	W38	.700	15139	11.3	13	-B		C	0229	54	.7	D	
29 CULG	14	0251	0320	0333	N12	W42	.717	15139	11.0	42	-F		C	0320	30	.4	T	Y5

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OBSERVATORY	OBSERVED UT				LOCATION					DURATION	IMPORTANCE	OBS.		MEASUREMENTS			REMARKS	
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMR DAY	MIN.		COND.	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR AREA Sq. Deg.		
	FEB																	
30 CULG	14	0401	0406	0414	N16	W41	.726	15139	11.1	13	-F		C	0406	30	.4	T	Y5
31 CULG	14	0427	0500	0509	N18	W38	.706	15139	11.3	42	-F		C	0500	50	.7	T	Y5
	14	0524	0530	NO FLARE PATROL														
GRP66032	14	0615+1	0620+1	0632D	N12	W43	.728	15139	11.0	17	-N				100	1.4	DJ	
ABST	14	0615E	0620	0625D	N11	W44	.734	15139	11.0	10D	1N		P	0620	140	2.1	DJ	
CULG	14	0616	0621	0632D	N13	W43	.732	15139	11.0	16D	-N		C	0621	70	1.0	T	
33 ABST	14	0615E	0616	0625D	N16	W31	.619	15139	11.9	10D	-F		P	0616	70	.9	DJ	Y5
	14	0641	0644	NO FLARE PATROL														
GRP66034	14	0656	0702+1	0712	N12	W42	.717	15139	11.1	16	1N				170	2.4	DJV	
CULG	14	0656	0702	0713D	N12	W42	.717	15139	11.1	17D	1N		C	0702	160	2.2	TV	
ABST	14	0701E	0703	0711	N12	W43	.728	15139	11.1	10D	1B		P	0703	175	2.6	DJ	
GRP66035	14	0706+2	0709+1	0740	N27	E69	.965	15153	19.5	34	-N				60		D	
ABST	14	0706E	0709	0740	N28	E70	.970	15153	19.5	34D	1F		P	0709	87		D	
CULG	14	0708	0710U	0715D	N27	E69	.965	15153	19.5	7D	-N		C	0710	40			
GRP66036	14	1109+6	1112+1 1120	1155	N11	W42	.712	15139	11.3	46	-N				140	2.0	EK	
ZURI	14	1109	1113	1123D	N11	W40	.690	15139	11.5	14D	-N		P	1113	150	2.2		
HTPR	14	1110	1112	1140	N12	W41	.706	15139	11.4	30	-N		C	1112	140	1.8	EK	
CATA	14	1115	1120	1145	N10	W40	.685	15139	11.5	30	-N	2	C	1120	112	1.5		
HTPR	14	1124	1127	1150	N11	W46	.756	15139	11.0	26	-N		C	1127	20	.3		
HTPR	14	1124	1127	1143	N14	W47	.778	15139	11.0	19	-N		C	1127	20	.3		
CATA	14	1130	1135	1200	N09	W46	.749	15139	11.0	30	-B	2	C	1135	56	.8		
GRP66037	14	1225+0	1230+0	1237	N14	W47	.778	15139	11.0	12	-N							
CATA	14	1225	1230	1240	N15	W48	.791	15139	10.9	15	-B	2	C	1230	56	.9		
HTPR	14	1225	1227	1232	N16	W51	.823	15139	10.7	7	-F		C	1227	10	.2		
HTPR	14	1228	1230	1233	N12	W43	.728	15139	11.3	5	-F		C	1230	20	.3		
GRP66038	14	1420+1	1428 1435+2	1441	N17	W44	.761	15139	11.3	21	-N						H	
MCMA	14	1420	1436	1445	N17	W44	.761	15139	11.3	25	-N		C	1435	60	1.0	H	
HTPR	14	1421	1428	1442	N17	W45	.771	15139	11.2	21	-F		C	1428	10	.1		
CATA	14	1430E	1435	1435D	N16	W44	.756	15139	11.3	5D	-B	2	P	1435	112	1.7		
RAMY	14	1435	1437	1439	N16	W46	.776	15139	11.2	4	-B	3	C		32			
ZURI	14	1435E	1435	1439	N18	W43	.756	15139	11.4	4D	1N		P	1435	160	2.6		
GRP66039	14	1529+1	1530+2	1540	N27	E67	.956	15153	19.7	11	-N				40		E	
MCMA	14	1529	1530	1540	N27	E68	.961	15153	19.7	11	-N		C	1530	30	1.2	E	
RAMY	14	1529	1532	1536	N27	E66	.952	15153	19.6	7	-B	3	C		28			
HTPR	14	1530	1532	1540	N28	E68	.962	15153	19.7	10	-N		C	1532	50	1.1	E	
GRP66040	14	1620+0	1623+0	1632	N13	W40	.699	15139	11.7	12	-B				30	.4	F	
RAMY	14	1620	1623	1632	N13	W42	.721	15139	11.5	12	-B	3	C		28		F	
RAMY	14	1620	1623	1626D	N14	W39	.694	15139	11.8	6D	-B	3	V		28			
41 MCMA	14	1720	1722	1745	N12	W48	.780	15139	11.1	25	-N		C	1722	100	1.7	E	Y5
GRP66042	14	1754	1758 1807	1823	N15	W42	.731	15139	11.6	29	-N						E	
PALE	14	1754	1758	1823	N15	W42	.731	15139	11.6	29	-F	3	C		30		DE	
PALE	14	1754	1807	1823	N15	W42	.731	15139	11.6	29	-N	3	C		60		DE	
	14	1755	1801	NO FLARE PATROL														
	14	1821	1837	NO FLARE PATROL														
43 PALE	14	1853	1909	1954	N15	W43	.742	15139	11.6	61	-N	3	C		36		DE	Y5
	14	1900	1906	NO FLARE PATROL														
	14	1937	1949	NO FLARE PATROL														
44 RAMY	14	2001	2004	2021	S32	E12	.463	15142	15.7	20	-N	3	C		41			Y5
	14	2014	2237	NO FLARE PATROL														
45 RAMY	14	2046	2047	2055	N14	W42	.726	15139	11.7	9	-B	3	C		74			Y5
46 RAMY	14	2115	2117	2124	S30	W10	.423	15142	14.1	9	-N	3	C		34			Y5
47 CULG	14	2237E	2237E	2305	N17	W53	.844	15139	11.0	28D	-F		P	2237	30	.6		Y5

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	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX MER. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMR DAY	MIN.		COND	TYPE	TIME UT	MEAS. AREA Mill. of Disk	CORR AREA Sq. Deg	
	FEB																
	14	2247	2301	NO FLARE PATROL													
48 CULG	14	2314	2320	2332	N12	W47	.770	15139	11.4	18	1N		C	2320	140	2.1	Y5
49 CULG	14	2320	2321	2332	N18	W80	.992	15135	9.0	12	-N		C	2321	40		Y5
50 CULG	15	0021E	0021E	0036	N14	W46	.768	15139	11.6	15D	-F		P	0021	20	.3	Y5
GRP66051	15	0301	0306	0316	N11	W50	.797	15139	11.4	15	-N						E
VORO	15	0301		0318	N12	W50	.800	15139	11.4	17	-B		P	0303	116	1.9	E
CULG	15	0304E	0306	0314	N11	W50	.797	15139	11.4	10D	-F		P	0306	40	.6	
GRP66052	15	0400+0	0403+1	0426	N12	W55	.847	15139	11.0	26	1N						F
CULG	15	0400	0403	0427	N12	W56	.855	15139	11.0	27	1N		C	0403	190	3.8	F
VORO	15	0400	0404	0410D	N14	W56	.860	15139	11.0	10D	2F		P	0404	340	6.9	E
MANI	15	0405E	0405U	0424	N11	W52	.816	15139	11.3	19D	-N	3	V		80	1.4	F
	15	0430	0436	NO FLARE PATROL													
	15	0446	0451	NO FLARE PATROL													
53 CULG	15	0456	0501	0519	N16	W38	.695	15139	12.4	23	-F		C	0501	20	.3	Y5
GRP66054	15	0718E	0720+5 0755+6	0843	N15	W48	.792	15139	11.7	85	-N						EJ
CULG	15	0718E	0725	0755D	N13	W50	.804	15139	11.6	37D	-N		P	0725	70	1.3	F
MANI	15	0720E	0720U	0725D	N14	W48	.788	15139	11.7	5D	-F	2	V		30	.5	
ATHN	15	0724E	0725	0740	N14	W52	.825	15139	11.4	16D	-N	1		0725	131	2.3	
BUCA	15	0738		0840	N17	W45	.771	15139	11.9	62	-F		C	0753	53	.9	E
BUCA	15	0746		0811	N15	W49	.801	15139	11.6	25	-N		C	0753	64	1.1	
HTPR	15	0748E		0808	N14	W52	.825	15139	11.4	20D	-N		C	0753	50	.6	E
HTPR	15	0748E		0830	N16	W47	.786	15139	11.8	42D	-N		C	0751	40	.4	E
CATA	15	0750	0755	0835	N14	W48	.788	15139	11.7	45	1B	2	C	0755	151	2.5	
MONT	15	0752E	0756	0845	N15	W47	.782	15139	11.8	53D	-N		C	0756	150		
MANI	15	0753E	0755	0845D	N15	W46	.772	15139	11.9	52D	-F	2	V		80	1.3	F
ATHN	15	0753	0755	0817D	N14	W52	.825	15139	11.4	24D	-N	1		0755	66	1.1	
ABST	15	0756E	0801	0900D	N18	W46	.785	15139	11.9	64D	1N		P	0801	149	2.6	BEJ
ABST	15	0756E	0801	0816	N15	W50	.810	15139	11.6	20D	-N		P	0801	105	1.7	BEJ
ATHN	15	0802E	0807	0830D	N17	W48	.800	15139	11.7	28D	-N	1		0807	82	1.3	
ZURI	15	0835E	0835	0850	N17	W46	.781	15139	11.9	15D	-N		P	0835	60	1.0	
GRP66055	15	0906+6	0915+1	0932	N10	W54	.832	15139	11.3	26	-F				60	1.1	E
MONT	15	0906	0915	0932	N11	W56	.853	15139	11.2	26	-N		C	0915	70		E
ZURI	15	0912	0916	0932	N10	W53	.823	15139	11.4	20	-F		C	0916	60	1.1	
GRP66056	15	0919+7	0923+5	0940	N27	E54	.885	15153	19.4	21	-F				50	1.1	J
HTPR	15	0919	0927	0937	N28	E55	.894	15153	19.5	18	-F		C	0927	20	.3	E
MONT	15	0923	0927	0941	N27	E53	.878	15153	19.4	18	-F		C	0927	40		D
ABST	15	0923E	0923	0931D	N34	E63	.952	15153	20.1	8D	-F		P	0923	70		EDJ
ZURI	15	0926	0928	0940	N27	E53	.878	15153	19.4	14	-B		C	0928	80	1.8	
GRP66057	15	1005+1	1012+3	1032	N33	E58	.926	15153	19.8	27	-N				60	1.4	E
MONT	15	1005	1012	1032	N34	E60	.939	15153	19.9	27	-N		C	1012	60		E
ZURI	15	1006	1012	1034	N33	E60	.936	15153	19.9	28	1B		C	1012	120		
HTPR	15	1006		1020D	N33	E56	.916	15153	19.6	14D	-F		C	1010	20	.3	E
TEHR	15	1012E	1015	1032	N27	E55	.891	15153	19.6	20D	-B	2	C		63		
GRP66058	15	1048	1051	1107	N14	W52	.825	15139	11.5	19	-N						
MONT	15	1048	1051	1108	N15	W52	.829	15139	11.6	20	-N		C	1051	100		EF
KANZ	15	1056E		1105	N14	W52	.825	15139	11.6	9D	-F						
GRP66059	15	1110+2	1112+1	1121	N17	W41	.731	15139	12.4	11	-N				60	.9	U
MONT	15	1110	1113	1120	N18	W41	.737	15139	12.4	10	-F		C	1113	60		E
KANZ	15	1110	1113	1121	N17	W41	.731	15139	12.4	11	-F						
ZURI	15	1112	1112	1120	N17	W40	.721	15139	12.5	8	-N		C	1112	70	1.1	
TEHR	15	1116E	1121	1126	N18	W42	.747	15139	12.3	10D	-B	2	C		95		U F
GRP66060	15	1114+1	1121+3	1134	N32	E57	.918	15153	19.7	20	-F						E
MONT	15	1114	1124	1134	N32	E58	.924	15153	19.8	20	-F		C	1124	60		E
KANZ	15	1115	1121	1134	N32	E56	.913	15153	19.7	19	-F						
GRP66061	15	1115>9	1137+0	1147	N14	W57	.868	15139	11.2	32	-F						D
KANZ	15	1115	1137	1147	N13	W57	.866	15139	11.2	32	-N	*					
MONT	15	1129	1137	1146	N15	W57	.871	15139	11.2	17	-F	*	C	1137	20		D
62 KANZ	15	1215	1215	1226	N19	W60	.902	15139	11.0	11	-F						Y5

Hα SOLAR FLARES

FEBRUARY 1978

OBSERV-ATORY	OBSERVED UT				LOCATION					DURA-TION	IMPOR-TANCE	OBS.		MEASUREMENTS			REMARKS	
	DATE	START	MAX. PHASE	END	APPROX LAT.	APPROX LONG. DIST.	CENTRAL DISTANCE	McMATH PLAGE REGION	CMR DAY	MIN.		CONG	TYPE	TIME UT	MEAS. AREA Millionths of Disk	CORR AREA Sq. Deg.		
	FEB																	
GRP66063	15	1345+3	1348+4	1414	N15	W52	.829	15139	11.7	29	-B				70	1.2	E	
RAMY	15	1334	1343	1349	N14	W51	.816	15139	11.7	15	-B	3	C		18			
MONT	15	1345	1348	1404	N16	W51	.823	15139	11.7	19	-B		C	1348	80		E	
KANZ	15	1346	1349	1432	N16	W52	.832	15139	11.7	46	-B							
ZURI	15	1348	1350	1400	N14	W56	.860	15139	11.4	12	-N		C	1350	100	2.1		
RAMY	15	1350E	1352	1423	N14	W51	.816	15139	11.8	33D	-B	3	C		57			
64 RAMY	15	1458	1458	1502	N32	E57	.918	15153	19.9	4	-B	3	C		30			Y5
GRP66065	15	1502+2	1503+1	1509	N13	W56	.858	15139	11.4	7	-N							
KANZ	15	1502	1503	1509	N13	W57	.866	15139	11.4	7	-F							
ZURI	15	1504	1504	1508	N14	W56	.860	15139	11.4	4	-B		C	1504	100	2.1		
GRP66066	15	1534+4	1537+2	1544	N33	E59	.931	15153	20.1	10	-N				30		E	
MCMA	15	1534	1539	1545	N34	E60	.939	15153	20.1	11	-F		C	1539	30	.8	E	
RAMY	15	1534	1537	1542	N32	E56	.913	15153	19.8	8	-B	3	C		23			
ZURI	15	1538	1539	1539D	N33	E60	.936	15153	20.2	1D	1F		P	1539	100			
	15	1608	1708	NO FLARE PATROL														
67 RAMY	15	1652	1656	1658	N32	E56	.913	15153	19.9	6	-B	3	C		15		DE	Y5
68 MCMA	15	1710E		1723D	N15	W53	.837	15139	11.7	13D	-N		P	1715	35	.7	E	Y5
GRP66069	15	1838+0	1841+0	1858	N32	E55	.908	15153	19.9	20	1B				150	3.3	EHL	
PALE	15	1838	1841	1858	N31	E54	.898	15153	19.8	20	1B	3	C		183		DE	
RAMY	15	1838	1841	1858	N32	E55	.908	15153	19.9	20	1B	3	C		173		DE H	
MCMA	15	1843E		1852D	N34	E56	.919	15153	20.0	9D	1N		P	1843	110	2.6	EL	
	15	1852	2158	NO FLARE PATROL														
70 PALE	15	1858	1858	1913	N15	W56	.863	15139	11.6	15	-N	3	C		20		DE	Y5
GRP66071	15	1915+1	1916+0	1926	S32	E01	.426	15142	15.9	11	-F				20	.2	H	
PALE	15	1915	1916	1919	S32	W01	.426	15142	15.7	4	-F	3	C		22		DE	
RAMY	15	1916	1916	1933	S33	E04	.445	15142	16.1	17	-F	4	C		21		H	
72 RAMY	15	1939	1941	1944	N32	E54	.902	15153	19.9	5	-B	4	C		29		DE	Y5
73 CULG	15	2159E	2202U	2213D	N14	W57	.868	15139	11.6	14D	-F		P	2202	30	.6		Y5
	15	2204	2211	NO FLARE PATROL														
	15	2213	2223	NO FLARE PATROL														
GRP66074	15	2217>9	2233+4	2259	N16	W48	.796	15139	12.3	42	-B							
PALE	15	2217E	2237U	2253	N16	W49	.805	15139	12.3	36D	1B	3	C		184		DE	
CULG	15	2228	2233	2305	N16	W48	.796	15139	12.3	37	-B		C	2233	80	1.3		
75 CULG	15	2223E	2223	2237	N11	W63	.908	15139	11.2	14D	-F		P	2223	30	.7		Y5
GRP66076	15	2325+5	2332+8	0004	N15	W57	.871	15139	11.7	39	-N				70	1.4	EIJ	
CULG	15	2325	2332	0010	N13	W59	.882	15139	11.6	45	-N		C	2332	50	1.0		
VORO	15	2329	2338	2356	N15	W57	.871	15139	11.7	27	-B		C	2338	90	1.8	EJ	
MITK	15	2330E	2340	0003	N15	W57	.871	15139	11.7	33D	-F		C	2340	70	1.5	EI	
PALE	15	2330	2333	0036	N15	W55	.855	15139	11.9	66	-N	3	C		80		FDE	
MANI	15	2333E	2334	2358D	N15	W56	.863	15139	11.8	25D	-F	2	V		50	1.0	F	
77 CULG	15	2352	2409	0028	S35	W04	.476	15142	15.7	36	-F		C	2409	30	.3		Y5
GRP66078	16	0015+1	0016+3 0028	0031	N13	W56	.858	15139	11.8	16	-B						H	
VORO	16	0015	0016	0025	N12	W58	.872	15139	11.7	10	-B	*	C	0016	81	1.6	DH	
CULG	16	0016	0019	0031	N13	W56	.858	15139	11.8	15	-B	*	C	0019	40	.8		
VORO	16	0027	0028	0030	N13	W60	.890	15139	11.5	3	-B	*	C	0028	45	.9	D	
PALE	15	2330	2417	0036	N18	W55	.863	15139	11.9	66	-B	*	C		126		FDE	
GRP66079	16	0139+0	0140+2	0154	N12	W59	.880	15139	11.6	15	-N						D	
VORO	16	0139	0140	0149	N13	W60	.890	15139	11.6	10	-B		C	0140	63	1.3	D	
CULG	16	0139	0142	0158	N12	W59	.880	15139	11.6	19	-N		C	0142	20	.4		
80 VORO	16	0203	0204	0207	N13	W60	.890	15139	11.6	4	-B		C	0204	27	.5	DJ	Y5
GRP66081	16	0308+2	0309+4	0333	N16	W50	.814	15139	12.4	25	-N				50	.8	E	
VORO	16	0308	0309	0319	N17	W51	.827	15139	12.3	11	-B		C	0309	72	1.2	E	
CULG	16	0310	0313	0346	N15	W50	.811	15139	12.4	36	-F		C	0313	30	.5		

REGIONAL FLARE INDEX

INCLUDES ALL FLARES

MC MATH PLAGE NO.	LAT	CMP DATE	DATE FIRST FLARE	DATE LAST FLARE	FLARE-INDEX SUM	FLARE-INDEX MEAN	TOTAL NO. OF FLARES
15123	S17	78/02/01.2	78/01/27	78/02/07	20.68	1.72	9
15124	S29	78/02/01.9	78/01/25	78/02/06	258.77	19.91	73
15125	N16	78/02/02.0	78/01/28	78/02/08	16.63	1.39	8
15136	N33	78/02/02.2	78/02/03	78/02/07	295.17	59.03	13
15144	S43	78/02/02.5	78/02/06	78/02/06	.87	.87	1
15126	N24	78/02/03.1	78/01/27	78/02/08	145.30	11.18	40
15131	N27	78/02/06.1	78/02/01	78/02/01	1.82	1.82	2
15132	S27	78/02/07.8	78/02/01	78/02/09	13.77	1.53	5
15134	N27	78/02/08.3	78/02/02	78/02/14	153.59	11.81	49
15135	N21	78/02/08.4	78/02/01	78/02/14	131.00	9.36	52
15139	N17	78/02/11.8	78/02/05	78/02/15	1643.35	149.40	174
15142	S28	78/02/15.4	78/02/09	78/02/15	19.93	2.85	6
15152	N22	78/02/18.6	78/02/13	78/02/13	1.08	1.08	1
15153	N32	78/02/20.2	78/02/13	78/02/15	25.08	8.36	11

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